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TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1893.

No. ~~311~~. 53

WILLIAM COUPE AND EDWIN A. BURGESS, COPARTNERS AS WILLIAM A. COUPE & COMPANY, PLAINTIFFS IN ERROR,

vs.

HERMAN ROYER AND LOUIS ROYER.

IN ERROR TO THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF MASSACHUSETTS.

FILED OCTOBER 20, 1890.

(14,357.)

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1 *Writ of Error.*

UNITED STATES OF AMERICA, *ss:*

[Seal of the Circuit Court, Massachusetts.]

The President of the United States to the honorable the judges of the circuit court of the United States for the district of Massachusetts, Greeting:

Because in the record and proceedings, as also in the rendition of the judgment of a plea which is in the said circuit court, before you, between Herman Royer, of San Francisco, in the county of San Francisco and State of California, and a citizen of said State, and Louis Royer, of Halifax, in England, plaintiffs, and William Coupe and Edwin A. Burgess, copartners under the firm name and style of William A. Coupe & Company, both citizens of the Commonwealth of Massachusetts, and of that part of Attleboro' called South Attleboro', in the county of Bristol, in the district of Massachusetts, defendants in an action of tort, a manifest error hath happened, to the great damage of the said defendants, as by their complaint appears, we, being willing that error, if any hath been, should be duly corrected and full and speedy justice done to the parties aforesaid in this behalf, do command you, if judgment be therein given, that then, under your seal, distinctly and openly, you send the record and proceedings aforesaid, with all things concerning the same, to the Supreme Court of the United States, together with this writ, so that you have the same at Washington on the second Monday of October next, in the said Supreme Court to be then and there held, that, the record and proceedings aforesaid being inspected, the said Supreme Court may cause further to be done herein to correct that error what of right and according to the laws and custom of the United States should be done.

Witness the Honorable Melville W. Fuller, Chief Justice of the said Supreme Court, the fifth day of December, in the year of our Lord one thousand eight hundred and eighty-nine.

JOHN G. STETSON,
Clerk of the Circuit Court of the United States,
District of Massachusetts.

Writ issued by order of Honorable George M. Carpenter, district judge of the United States for the district of Rhode Island, duly assigned to hold the circuit court of the United States for the district of Massachusetts.

Attest: JOHN G. STETSON, *Clerk.*

2 *Return on Writ of Error.*

Circuit Court of the United States, District of Massachusetts, *ss.*

And now here the judges of the circuit court of the United States in and for the district of Massachusetts make return of this writ by

annexing hereto and sending herewith under the seal of the said circuit court a true and attested copy of the record and proceedings in the suit within mentioned, with all things concerning the same, to the Supreme Court of the United States, as within commanded.

In testimony whereof I, John G. Stetson, clerk of said circuit court of the United States in and for the district of Massachusetts, have hereto set my hand and the seal of said court this first day of October, A. D. 1890.

JOHN G. STETSON, *Clerk.*

3 UNITED STATES OF AMERICA, } ss.:
Massachusetts District, }

At a circuit court of the United States for the first circuit, begun and holden at Boston, within and for the district of Massachusetts, on Tuesday, the fifteenth day of October, in the year of our Lord one thousand eight hundred and eighty-nine, before the Honorable Le Baron B. Colt, circuit judge.

HERMAN ROYER, of San Francisco, in the County of San Francisco and State of California, and a Citizen of said State, and LOUIS ROYER, of Halifax, in England, and a Citizen of Great Britain, Plaintiffs,

v.

WILLIAM COUPE and EDWIN A. BURGESS, Copartners under the Firm Name and Style of William A. Coupe & Company, both Citizens of the Commonwealth of Massachusetts and of that Part of Attleboro' Called South Attleboro', in the County of Bristol, in our District of Massachusetts, Defendants.

No. 2542, Law Docket.

In an action of tort, otherwise called an action of trespass on the case, to the damage of the said Herman Royer and Louis Royer, as they say, the sum of five hundred thousand dollars.

Plaintiffs' Declaration.

(Filed October 15, 1885, with writ.)

4 And the plaintiffs say that before their application for the letters patent hereinafter mentioned they had discovered and invented a new and useful improvement in machines for treating hides, which was not known or used by others before their discovery or invention thereof and which was not at the time of their application for said patent in public use or on sale with the consent or allowance of them or either of them, and, being citizens of the United States, made application in due form of law to the Commissioner of Patents of the United States for letters patent for said invention, and duly made oath and performed the other requirements specified by the statutes of the United States in such case made and provided; that thereupon due proceedings were had

and letters patent of the United States were granted the plaintiffs for said invention and discovery by the Commissioner of Patents in due form of law under the seal of the Patent Office, dated May 12th, 1868, and signed by the Secretary of the Interior and countersigned by said Commissioner of Patents, being letters patent of the United States No. 77920, and that the said letters patent granted and in its terms granted to said plaintiffs, their heirs, executors, administrators, or assigns, for a term not exceeding seventeen years from said 12th day of May, 1868, the full and exclusive right and liberty to make, use, and vend to others to be used the said invention or discovery, referring to the specification of said letters patent annexed thereto for the particulars thereof, as will fully appear by said letters patent and specification or a duly certified copy thereof here in court to be produced as a part of this declaration.

5 And the plaintiffs further say that from the time of the granting to them of the said letters patent unto the expiration of the term of said seventeen years they made, used, and vended to others to be used the said improvement to their great advantage and profit.

Yet the said defendants, well knowing the premises, but contriving to injure the plaintiffs, did, on the 13th day of May, A. D. 1868, and on the 15th day of July, 1879, and at divers other times between said dates and after said 15th day of July, during the said term of seventeen years mentioned in said letters patent, and before the date of the plaintiffs' writ, unlawfully and wrongfully and without the consent or allowance and against the will of the plaintiffs, *did* make, use, and sell and cause to be made, used, and sold the said improvement and invention, in violation and infringement of the exclusive right so secured to plaintiffs by said letters patent as aforesaid and contrary to the form of the statute of the United States in such case made and provided, whereby the plaintiffs have been greatly injured and deprived of great profit and advantage which they otherwise would have derived from said improvement and have sustained actual damage to the amount of five hundred thousand dollars, and by force of the statute aforesaid an action hath accrued to them to recover said actual damages and such additional amount, not exceeding in the whole three times the amount of said actual damages, as the court may see fit to order and adjudge besides costs. Yet the said defendants, though requested, have never paid the same or any part thereof to the plaintiffs, but have refused and yet refuse so to do.

By their attorneys, LIVERMORE & FISH.

6 The writ in this cause is dated the fourteenth day of July, A. D. 1885, and was duly entered at the October term of this court, A. D. 1885, when and where the parties appeared by their respective attorneys.

This cause was thence continued to the May term, A. D. 1886, when the following pleas were filed:

Defendants' Plea.

(Filed May 15, 1886.)

And the said defendants come and defend, when, &c., and say that they are not guilty in manner and form as the said plaintiffs have above declared against them, and of this they put themselves upon the country.

By their attorney, BENJ. F. THURSTON.

The defendants reserve the right to file notices of special defences.

Defendants' Further Plea.

(Filed May 17, 1886.)

And for further plea in this behalf by leave of the court the said defendants come and defend the wrong and injury, when, etc., and say that the said plaintiffs ought not to have and maintain their aforesaid action thereof against the defendants so far as the same relates to any alleged infringements by the defendants of the plaintiffs' alleged exclusive right to the use of the inventions and improvements set forth in said letters patent No. 77920, dated May 12, 1868, which may have occurred previous to July 15, A. D. 1879, because they say that said alleged infringements did not occur at any time within six years next before the commencement of this suit in manner and form as the said plaintiffs have above complained against the said defendants, and this the said defendants are ready to verify. Wherefore they pray judgment if the said plaintiffs ought to have or maintain their aforesaid action against the said defendants so far as the same relates to the defendants' alleged infringement of the said plaintiffs' alleged exclusive right under said letters patent declared on prior to July 15, 1879.

7

By their attorney, BENJ. F. THURSTON.

This cause was thence continued to the October term, A. D. 1886, when—the Honorable George M. Carpenter, district judge of the United States for the district of Rhode Island, duly assigned by the Honorable Le Baron B. Colt, circuit judge, to hold this circuit court, sitting—a jury was empannelled and sworn according to law to try the issue, who, after hearing all matters and things concerning the same, returned their verdict on the tenth day of November, A. D. 1886, and upon oath said: "The jury find for the plaintiffs and assess damages in the sum of eighteen thousand dollars."

This cause was thence continued to the May term, A. D. 1887, when a bill of exceptions, allowed by the Honorable George M. Carpenter, district judge of the United States for the district of Rhode Island, duly assigned by the Honorable Le Baron B. Colt, circuit judge, to hold this circuit court, was filed. This cause was thence continued from term to term to this present October term, A. D. 1889,

when—the Honorable George M. Carpenter, district judge of
8 the United States for the district of Rhode Island, duly assigned by the Honorable Le Baron B. Colt to hold this circuit court, sitting—judgment is ordered to be entered on the verdict herein, and it is thereupon considered by the court, to wit, November 26, 1889, that the said Herman Royer and Louis Royer, plaintiffs, recover of the said William Coupe and Edwin A. Burgess, defendants, the sum of twenty-one thousand two hundred and eighty-eight dollars' damages and their costs of suit, taxed at one hundred and sixty-four dollars and twenty-five cents.

A true record.
Attest: JOHN G. STETSON, *Clerk.*

The following is the bill of exceptions referred to in the foregoing record as filed at the May term, A. D. 1887, the same having been allowed and filed on the eighteenth day of May, 1887, before entry of judgment:

Bill of Exceptions.

(Filed May 18, 1887.)

The defendants in the above-entitled case except to the instructions given in the charge by the court to the jury in the particulars hereinafter next assigned:

1. For that the plaintiffs having introduced in evidence the letters patent granted to Herman Royer and Louis Royer for an improved machine for treating hides, No. 77920, dated May 12, 1868, and also testimony tending to show that prior to the joint invention of Herman Royer and Louis Royer the said Louis Royer had individually constructed a machine for softening hides which had a horizontal shaft and a horizontally arranged crib which was
9 composed of bars, the ends of which passed through radial slots in the heads of the machine and were partially held by two chains, one of which surrounded the crib near each respective end thereof; so that the upper bars rested upon the hide that was wound around the shaft, while the lower bars hung loosely in the chains farther away from the shaft than were the upper bars, said bars not being fixed in rings or otherwise so as to be concentric with the shaft, nor so as to remain permanently in any fixed position relatively to the shaft, and without any devices for applying pressure to the hides while in the crib, and that such Louis Royer machine was not successful, and further offered testimony which they contended was to the effect that before the joint invention of the plaintiffs no machine for softening hides was known in which there was employed a revolving shaft for alternately winding and unwinding the hides, a surrounding crib, and end pressure applied to the hides while in the crib, and the defendants having offered testimony which they contended was to the effect that fulling machines similar to machines used for fulling cloth had for many years before the invention set forth in the said letters patent been known

and used for softening hides (reference being had to the report of the testimony of Herman Royer, George P. McMahon, and William Coupe, which is made a part hereof), the court, in response to the request of the defendants to instruct the jury that the plaintiffs' patent and the claims thereof on its face should be construed as requiring the presence, in the combinations recited therein, of a vertical shaft and a correspondingly arranged vertical crib, and that as it appeared from the evidence, and was undisputed, that the machines complained of as used by the defendants were provided with horizonal shafts and horizontal cribs, the jury should return a verdict for the defendants, declined to give the instruction prayed for, but did instruct the jury as follows:

"You will come, however, gentlemen, to another and further consideration, which you must determine upon the testimony which is laid before you. In order to explain that, perhaps, I ought to preface by saying what you are to take this patent to mean; what it is, in brief terms, that it covers. In order that I may bring my observations within the technical requirements, what is the interpretation which you are to put upon this patent? This, gentlemen, is a patent, and the invention of the plaintiffs is an invention which is to be described as follows: It consists of a shaft which contains or has attached to it means by which hides can be fastened to its periphery. Around that shaft and leaving that shaft in the centre are arranged a number of bars which shall contain the roll of hides after it has been wrapped around the central shaft. In the third place there is a plunger or false head or contracting device, whatsoever you may call it—a piece of metal or of wood—which so moves as to reduce the space within which the hides are contained for the purpose of squeezing them sidewise. That is all there is in the machine, and any machine which contains these elements is an infringement of the plaintiffs' device and is a violation of law. I need not say to you that the defendants' machine is such a machine. It contains a central shaft and a device for fastening hides to it. It has other devices, also, for fastening other hides, but that constitutes no excuse for the use of the one single device for fastening hides. It has the bars surrounding the central shaft and which confine the hides after they are wound about that shaft. Those bars also have conveniences and means for adjusting them inwardly and outwardly. It also has a movable head, which operates to reduce the space in which the hides are, or, in more popular phrase, to squeeze the hides together, and it also has another corresponding head on the other side, two instead of one."

and did further instruct the jury, as appears from that portion of the charge of the court set forth in connection with the second exception hereinafter stated.

2. For that the plaintiffs having submitted testimony and evidence tending to show what necessary elements or devices were contained in the structure described in the letters patent in suit and the operation of the same in doing the work of fulling or softening raw hides, and also testimony tending to show that the machines for

treating raw hides used by the defendants contained in their structure the same elements as those described in the patent in suit or equivalents therefor, notwithstanding that the defendants' machines were arranged with horizontal shafts and horizontal cribs, and were provided with two pressure plates or false heads arranged to approach toward or recede from each other by means of right and left hand screws under the control of the operator, and that such machines of the defendants operated in the same manner as the machine described in the said letters patent; and the defendants having offered testimony and evidence tending to show that such horizontally arranged shafts and cribs, in combination with such pressure plates, operated differently from a machine in which the shaft and crib were arranged vertically, and the pressure upon the hides obtained from a weight pressing in a vertical direction upon the hides in the crib, in that said patented machine, roped or twisted the hides and did not uniformly soften the same, and that the pressure of the weight tended to tear the hides from their fastenings to the shaft (here read the report of the testimony of Herman Royer, Hadley P. Fairfield, Joseph P. Livermore, George P. McMahon, William Coupe, Joseph H. Lee, Michael McGowan, and Joseph Meier, which, together with the exhibits referred to, is made a part hereof), the defendants requested the court to instruct the jury that if they should find as a fact that the substitution by the defendants of a horizontal shaft and a surrounding horizontal crib in place of a vertical shaft and a surrounding vertical crib, and the substitution of two end pressure plates arranged to approach toward or recede from each other by a positive movement under the control of the operator in place of the single-pressure weight de-
12 scribed and shown in the plaintiffs' patent, produced an effect different in kind from the effect produced when a vertical crib and pressure weight is employed in the operation of fulling hides, then it would be their duty to find a verdict for the defendants; but the court declined to give the instructions prayed for, and did instruct the jury thereon as follows:

"There is one difference as to which there is other testimony and to which I have not made reference. There is a difference in the position of the attitude of the machines. One of them is said to be vertical and one of them is said to be horizontal. One of them, as it might be said, stands upright and the other lies down on its side. Now, from that change which the defendant Coupe made, taking this" (the plaintiffs') "machine (for, as I say, we assume that he knew of the existence of it) and conceiving it to be an advantage to lay it down on its side, to make it horizontal instead of vertical, it followed that there must be a change made in the operation of the head or plunger which pressed the hides, because when it stood upright it would remain in its place by its own weight. If it was laid down on its side the weight would be likely to fall out of its place, and the weight of the plunger itself might be an inconvenience instead of a convenience in the operation. It was, therefore, necessary if this machine was to be changed into a horizontal machine, or if, to speak more accurately, the attitude of the mechan-

ism was to be changed, it was necessary to make a different device for the purpose of compressing the hides. That is done in a very simple and ingenious way here by using a comparatively thin false head or plunger, and moving it by a screw which moves it forward and back as may be required. Those two changes, therefore, go together, as it were—one is a consequence of the other and they form the most obvious difference to the eye between the two machines. Regarding that change this claim is made by the defendant. He claims that the change results in a radically different method of operation of the two machines. To state it in the language used in the patent law, he claims that there is a difference of function, which means simply that there is a difference in the manner and result of the operation of the two machines caused by laying one of them on its side. You are not to assume, gentlemen, that that is not possible. The change is slight in its general aspect. There is no change in the structure of the machine—it is simply a change in the attitude of the machines in relation to the plane of the horizon. Nevertheless, you are to consider that changes smaller than that have sometimes resulted in very large differences in the method of operation. You must, therefore, with unprejudiced minds enter upon the consideration of the question, when you retire to your room, whether there be any difference in the operation of these two machines, the one standing vertical or erect, the other standing horizontal or lying upon its side.

Now, what is the nature of the difference which the defendant claims? He claims that the difference is this: that the
13 machine in a horizontal position will break the hides so that they can be used for useful purposes in the arts, and that the machine standing in a vertical position will not accomplish this work. To use his phrase, the phrase of the patent law, the machine is not operative; or, to use a phrase equally accurate and perhaps more easily comprehended, that this machine will not do the work which it is appointed to do. If that be so, gentlemen, there is not only a radical difference in operation, but there is evidently a defect in the original patent, so that if that claim made by him is true, he has two defences, either one of which is a sufficient answer to this case. That is to say, while the machine described by the plaintiff as being a vertical machine will include horizontal machines also, and while it is true that a horizontal machine will infringe this patent for a vertical machine if it appears that the operation of the machine is substantially the same in the one position or the other; on the other hand you will understand that if it appears that a horizontal machine will work and is operative, and that a vertical machine will not work and is not operative, then you must confine the plaintiff to that interpretation and meaning of his patent, which confines him to vertical machines alone.

It is not necessary for me to elaborate the legal principle contained in this. It would not interest you, and perhaps would tend rather to confuse than to elucidate what I have to say, and I, therefore, make one statement which, for practical purposes, for your purposes, covers the whole question. If you find that a machine

made with this shaft, crib, and weight, and standing so that the shaft is vertical, that is to say, is upright, will not break hides, will not do the work which it is expected to do, then, in that case, the defendant is entitled to your verdict. If you find that it will do that work, then the plaintiff is entitled to your verdict so far as this question is concerned. You are not to consider, gentlemen, which does it the best; you are not to choose between the two machines; you are not to consider whether one machine makes more trouble than the other, whether one makes work more uniform than the other and more desirable in the market, whether one is better able to perform the work, whether one does it with a less amount of power, whether it is easier in one to load or unload than in the other, whether the machine is more under the control of the operator in one case than in the other, or whether the crib in one case is more adjustable than in the other. These considerations are of no consequence. To put it more shortly, the question to be determined by you is not which of these machines is the better machine, but simply and solely, will a machine made with a verticle shaft do the work at all? Now, as to that you must consider the large amount of testimony that has gone in here."

3. For that the plaintiffs having offered testimony and evidence in relation to the operation of the machine described in the said letters patent granted to Herman Royer and Louis Royer, No. 77920, dated May 12, 1868, in fulling rawhides and also tending
14 to show that the machines for treating rawhides used by the defendants employed the same combination of devices and were an infringement of said letters patent, and the defendants having offered testimony and evidence tending to show that the machines employed by them made use of horizontally arranged shafts and cribs and two false heads, arranged to approach towards or to recede from each other, controlled by right and left hand screws, and adapted to exert pressure upon the hides in the crib at the will of the operator, and that the effect of such devices in combination was to produce a different result in the softening of rawhides from that obtained from a machine containing the elements described and combined as set forth in the said letters patent (here read the report of the testimony of Herman Royer, Hadley P. Fairfield, Joseph P. Livermore, George P. McMahon, William Coupe, Joseph H. Lee, Michael McGowan, which, together with the exhibits referred to, is made a part hereof), the court, in response to the request of the defendants to instruct the jury that a mechanical equivalent for a device shown in letters patent is a thing which performs the same result in substantially the same way or by substantially the same mode of operation as the device described in the patent, and that if the jury should find from the evidence and testimony in the cause that under this rule the pressure plates controlled as to their movements and as to the degree of pressure to be exerted by them, by right and left hand screws, at the pleasure of the operator, were not the equivalents, in a horizontal hide-fulling machine, of the pressure weight in a vertical machine, then the jury ought to find a verdict that the defendants do not infringe the second claim of the plain-

tiffs' patent, declined to give the instruction specifically as
15 prayed for, but the instructions given on the matter are comprehended within those portions of the charge of the court hereinbefore specifically set forth.

4. For that the defendants having offered testimony and evidence to the effect that they had caused to be constructed a working machine in accordance with the specification and drawings of the said letters patent to Herman Royer and Louis Royer in suit (here read the report of the testimony annexed to William Coupe and Joseph H. Lee, which, together with the exhibits referred to, is made a part hereof), and the defendants having also offered testimony tending to show that such machine was not practically useful for fulling hides (reference being had to the testimony of the said William Coupe), the court instructed the jury thereon as follows:

"On the other hand, you have the testimony of one of the defendants to the effect that he made one of these machines and tried it and it did not work; and as to that you will of course observe the testimony, which I think is not disputed, that in the construction of that trial machine the ordinary requirements of mechanical art were not observed. The machinist who constructed that machine was told to build one exactly like the drawings of the patent. He reported, as I remember the testimony, that there would be practical difficulties about working it, and the answer which he received from the defendant Coupe was not to regard that, but to construct it exactly as it was shown in the drawings. That is not the proper way to construct a machine if you propose to try whether it be or be not an operative machine in the sense of the patent law. In building a machine for the purpose of testing it or for the purpose of using it, if you are building it in accordance with the drawings of a patent or with any other drawings, in fact, which are presented for that purpose, there are very many mechanical devices which will tend to make the machine practically operative which are within the duty of a mechanic, and do not come within the limits of inventive art. Whether the screws were of the right length or not, whether they were of the right number to be convenient, whether they were put in the right place, for example, was material. It was the business of the machinist who should undertake to construct and to try fairly a machine made after that patent, to put in the proper number of screws which experience and his knowledge of the art would show him, to put them in the proper places, and to make them of the proper and convenient length. So much intelligence is supposed to be in the public and in all mechanics. It is not necessary that a patent should state such
16 things as that, or the parties to it, in order that they may bind the public; such things are always understood.

You have also the opinion of Mr. Coupe, if I am not mistaken, that even if he had built this machine properly according to the description of the patent and even if he had employed ordinary mechanical skill in constructing it, even then it would not have worked, and he is of the opinion that no vertical machine ever can work.

You must therefore consider these two classes of facts: the opinion of Mr. Coupe and the evidence which you have as to what has been done with these machines. Of course I need not say to you that if you find that vertical machines have been operated, that is conclusive upon the proposition that they can be operated. It is idle to say, if you should find that it has been done; that leather has been softened and put into the market—practical leather, salable leather—it would, of course, be idle to say that such a thing cannot be done. That which has been done, of course, can be done."

Whereupon the counsel for the defendants suggested to the court in this connection as follows:

"In this connection, if your honor will pardon me, I desire to call attention to the fact that there is no machine like the patent which has been proved ever to have been used. Even Royer's machine is a machine with a lever attached to the weight."

Whereupon the court said:

"That is true and might have been observed."

And the counsel for the plaintiffs replied:

"The patent calls for pressure upon the top of that weight. A lever is the ordinary way of producing that in mechanics, and Mr. Royer has testified that he used the machine without any change whatever—just as it is described in the patent."

And thereupon the court further instructed the jury:

"I think you will find it is true that nobody ever made a literal copy of that patent drawing anywhere. The patentee did not make a literal copy of it; Coupe did not make a literal copy of it; Wetherhead did not make a literal copy of it, nor is it necessary that anybody should make a literal copy in order to bring himself within the Royer patent. It is not necessary for Royer to follow the lines of that drawing with absolutely slavish and Chinese accuracy, as I have already said to you, in order to construct a machine under the patent, nor is it necessary for Coupe to copy every line of that drawing in order to make himself an infringer, nor does he
17 give the patent a fair test by such a copy. Machines are to be constructed, as I have before said, with the admixture of intelligence. A patent is supposed to describe a machine with sufficient accuracy for the purposes of an ordinarily intelligent man who is acquainted with the art of machinery; it does not undertake to describe it to the mind of a person which is an absolute blank, which knows nothing either of machinery or of any other subject. It does not undertake to describe a piece of mechanism which can be copied as the Chinese copy and still be operative, nor does it undertake to describe a piece of machinery in which you can make a variation which would seem remarkable to a Chinese, and so escape infringement. So far as devices for operating this machine are concerned, they are not a part of the invention; they are notoriously the property of the whole world and any of them may be used by either of these parties, the patentee, the defendants, or by the public in driving these machines or any other. There is no patent on the bevel gears which run one of them or on whatever device it is that runs the other; the device is not shown here. There is a

crank put on there as well as on there; but whatever they use is the property of the public, and it is entirely immaterial to this controversy. So is whatever device may be used to press together the false head or the false heads. Any device may be used. The patentee does not describe any. He says it is pressed down. It is not necessary that he should describe any means. There are multitudinous means. A person might sit on it and press it down; he might press on it with his hands; it might be pressed down with a lever; and it might be done and is done in a very economical and mechanically handsome way, as you will see by this device here, by means of a double screw there, which holds it exactly in the place where it is put, although one of the witnesses, I think, undertook to say that it was held there by yielding pressure. I think, perhaps, however, I do not overstep my duty when I say that you will doubtless come to the conclusion that the false head, when moved by a screw in that way, is moved forward by a positive motion and is held where it is put rigidly, whatever the witnesses may say."

5. For that all the testimony introduced on the part of plaintiffs, after establishing the number of hides that the defendants had softened by the use of their machines to be upwards of sixty-six thousand (here read the report of the testimony annexed of Henry S. Burgess and Henry Gallagher), to prove the value of the patented invention being as follows in the testimony of Herman Royer:

"Q. 123. Do you know how the cost of softening rawhide by mechanical action, by any other known devices than as described in your patent, compares with the cost of manufacturing or softening rawhides by mechanical action in a machine which contains
18 the combination of devices named in your patent—that is, the central shaft with means for fastening the hides to the central shaft, a weight on which pressure may be applied on the coil of hides and the crib formed by the row of pins in a circle around the shaft? Ans. I know.

Q. 124. Do you know whether there is any difference or not in the cost between using any of these old devices and using a machine like yours? Ans. I do know there is a difference in cost.

Q. 125. How nearly can you approximate to what that difference is? Ans. Well, the difference is a matter of 84 or 85 a hide.

Q. 126. Was there ever any machine made prior to yours for softening rawhide in which the hides were wound and rewound within a crib or cage upon a central shaft? Ans. There was not.

Q. 127. Do you know whether or not the difference between the cost of softening the rawhide by mechanical action in your machine and doing the same work by hand or by any other devices known would be more or less than one dollar per hide? Ans. I know it will be more than one dollar per hide.

Q. 128. In which would the hides be softened the cheapest, in your machine or in the other devices? Ans. In my machine it would be made the cheapest."

And the testimony on the part of the defendants to meet such issue being as follows in the testimony of William Coupe:

"Q. 165. Assume the model now shown you, produced by the

complainant, to be a correct exhibition of the machinery described in the Royer patent: state from your experience as a manufacturer what would be the advantages, in your opinion, in the use of a machine of this kind for breaking, boarding, or treating hides over a fulling machine for treating hides, such as has been referred to as being well known in the art. Ans. From the construction of this machine, and having had the experience that I have had in working a machine that I consider to be made after the model or to be made after the draught of Royer's patent, and working this machine, I would not take a machine of this description (Exhibit 2) as a gift and be compelled to work it if it works anything like this (referring to Defendants' Exhibit of Complainants' Machine).

Q. 166. Now, disregarding any peculiarities of construction in the patent of Royer which would make it inoperative practically as with respect to the projection of the set-screws, but assuming that that machine be a vertical machine, simply with pressure applied to it as exhibited in the model before you, how would such a machine compare in point of economy or utility with the previously known fulling machines in the art? And in answering this question pay attention to the subject which you have already testified to concerning the roping of the hide in a vertical machine. Ans. Even though the shaft was countersunk and the heads of the screws were allowed to come flush with the outside of the shaft so as not to interfere with the weight going down, I would not then, under those circumstances, use it in preference to an old-fashioned fulling mill.

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Q. 167. Why not? Ans. Because I think I could work the fulling mill to a greater profit than I could work a vertical machine with pressure applied from above.

Q. 168. And why to more profit or advantage? Ans. Because I think it would do more work and make a better quality.

Q. 169. What would do more work? Ans. A fulling mill.

Q. 170. Why a better quality? — Because I think it would more effectually break the hides."

The defendants requested the court to instruct the jury that as it appeared upon the face of the plaintiffs' patent in suit that the invention specified therein related only to an improvement in machines for treating rawhides, the evidence upon the question of damages must show the value of the improvement which forms the subject of the patent, and if the evidence presented does not prove the value of such improvement, as distinguished from the value of the entire machine or of prior machines known to the art and free to be used by the public, then the verdict should be for nominal damages only, but the court declined to give the request as prayed for, but did charge the jury as follows:

"The course taken by the plaintiff to show the amount of damages is a proper course. He undertakes to show the value of this invention to any person using it, and the law deems it a fair inference that whatever value has been received by the defendants through the use of this invention, so much has been taken away from the plaintiff, and he is entitled to have it restored to him.

Upon the amount of those damages you have the testimony, if I remember right, of only one witness. Mr. Royer himself has made an estimation, as he states, of the amount of money which would be saved by the use of this particular mechanism for the performance of this particular operation in the course of the production of rawhide leather. There is no evidence as to the amount of advantage or profit from the employment of other devices for other purposes, either for the preparation of the leather before it goes through this machine or afterwards, but you heard his testimony to the effect that three or four dollars a hide is not an extravagant estimate of the amount of saving which would be made by the use of this mechanism of his, over and above any other device which was at the time of his invention in use and which the public had a right to use. That estimation, if you are satisfied with the fairness of it, may be taken as the basis of your calculations. You ought, however, to observe the statement made by the plaintiff himself that for the purpose of certainty or for other purposes he chooses that you shall take a considerably smaller sum, and which, according to his testimony, is clearly within the value of this invention—that is to say, the sum of one dollar for each hide. You will bear in mind that it is one dollar for a hide which is thus estimated, and not one dollar for a side of leather. If you believe his testimony to be sound and in accordance with the truth, then you may make up your verdict on that basis, that being, I think, the only testimony in the case as to the amount of damages."

Whereupon, it having been suggested by the defendants that William Coupe had also testified on the question of the value of the patented improvement in comparison with the value of the fulling machines previously known to the art for fulling or softening leather, the court further instructed the jury upon this matter as follows:

"My attention is called to the fact that there is other testimony regarding the amount of damages besides that of Mr. Royer. It is true, no doubt, that the defendant Coupe has testified that there is no advantage in the use of this patented mechanism; that it is not worth anything to him who uses it. His testimony is that it is not worth anything by way of advantage to him who uses it because it is not worth anything to anybody and cannot be made to make leather, according to his understanding of it, according to his testimony. Of course, if that be true, it not only reduces the damages to nothing, it is not only conclusive that there should not be any damages at all, but that there should be a verdict for the defendant. So that what I said before is strictly true, that assuming that there are to be any damages at all, assuming that the plaintiff is entitled to a verdict, the only testimony upon the subject of the amount of the verdict is that of Herman Royer."

6. For that the plaintiffs and the defendants having offered testimony respectively upon the question whether the plaintiffs had or had not given notice to the defendants prior to the commencement of the action that the defendants were infringing the said letters patent to Herman Royer and Louis Royer in suit (here read the

testimony of Herman Royer and William Coupe, which is
21 made a part hereof), the court instructed the jury as follows:

"The provision of law that no person shall take or use or infringe the rights of a patentee does not depend upon the knowledge on the part of the public of the patent itself—that is to say, an actual knowledge. The patent is public and is accessible to any person who may conceive that his business interests will be subserved by his finding out what his rights are and what they are not, but whether he reads the patent or not he is nevertheless bound by it. He cannot excuse himself by alleging or by proving, even if he can prove it, that he was not aware of the rights of the patentee. A patentee's rights are derived from the grant of the Government and are complete from the time when the patent is sealed and delivered to him, and it is the business of every person in the community to avoid infringements at his own risk. Nor is it necessary, gentlemen, before bringing an action, that the patentee should notify or inform the defendant that he conceives there is an infringement of his patent. If it were necessary, for example, that notice should be given, then the conversation which took place between one of the plaintiffs, Herman Royer, and one of the defendants, Coupe, at the shop of the defendants in Attleboro' in 1880, as that conversation is detailed by Coupe himself, throwing out of the account the statements made by Royer, would have been sufficient to put the defendants on their guard, and to notify them that a claim was or might be made against them. But in this case it is not necessary to show any notice. The plaintiff may produce his patent, which is the evidence of his right, and if he shows that it has, in point of fact, been infringed, then it will be no defence to his action if the defendant proves either that he did not know of the existence of the patent or that the plaintiff neglected to notify him. He was bound to know, and the plaintiff was not bound to assist his information or knowledge by notifying him."

All of which refusals to give such instructions as prayed for and the instructions as given by the court in answer to the requests made were duly excepted to before the jury had retired from the bar, and thereupon the defendants tendered this their bill of exceptions and prayed that the same might be signed and sealed by the court.

And forasmuch as the matters and things above set forth do not appear of record and the said bill of exceptions is found correct, the same is signed and sealed accordingly.

G. M. CARPENTER, *J.* [SEAL.]

22 The following is a report of the evidence introduced at the trial of this cause in the circuit court. Portions of this evidence are referred to in the foregoing bill of exceptions and made a part thereof. Some portions of this evidence are made a part of said bill of exceptions several times, and the several references in said bill of exceptions to the evidence cover substantially the whole evidence introduced at the trial. This report embraces the whole

evidence in the order in which it was introduced and no part of it is repeated.

Report of Evidence.

Honorable George M. Carpenter, district judge of the United States for the district of Rhode Island, presiding.

A. M. Wheaton, Esq., and Thomas L. Livermore, Esq., for plaintiffs; Benjamin F. Thurston, Esq., and Wilmarth H. Thurston, Esq., for defendants.

BOSTON, *Nov.* 3, 1886.

Counsel for plaintiffs put in evidence and read a certified copy of the patent on which the suit is based.

Testimony of Herman Royer.

(By Mr. WHEATON:)

Q. 1. Please state your name, age, residence, and occupation.

Ans. My name is Herman Royer; about fifty years. I reside in San Francisco, Cal.; am a belt manufacturer and manufacturer of lacing.

Q. 2. Are you the Herman Royer who is named as one of the patentees in this patent which has been put in evidence?

Ans. I am.

Q. 3. What relation, if any, was the other patentee, Louis Royer, to you?

Ans. That was my brother.

23 Q. 4. Have you read this patent and do you understand it?

Ans. I do.

(Patent marked Exhibit 1.)

Q. 5. I have here a model in my hand. How nearly does that represent the machine described in the patent?

Ans. That is a model that represents the sketch in the patent.

Q. 6. I see some bevelled wheels for reversing the motion mentioned in the patent. Are those put on this model?

Ans. They are not put on there.

(Counsel for defendants gives notice of his intention to prove that the model is not a correct model.)

Q. 7. I will call your attention particularly to the devices named in the patent and ask you to point them out in the model, if they are there. "A represents the frame, of any suitable materials, up through which the vertical shaft B passes, having a slot, B^1, through which the end of the hide is placed, where it is held in place by the set-screws *b b b b*." Whether that vertical shaft mentioned in the patent is in the model machine.

Ans. It is that shaft that stands in here and reaches through.

Q. 8. Is that the vertical shaft mentioned in the patent or not?

Ans. That is the vertical shaft mentioned in the patent.

Q. 9. It says, "Having a slot, B^1." Will you point to the jury where the slot B^1 is in the shaft in the model?

Ans. The slot is in the shaft inside this circle—inside this crib, as we call it, or drum, or cylinder. The slot is an opening in the shaft, a groove, a depression, whatever you call it.

(Model marked Exhibit 2.)

Q. 10. What, if anything, is now inserted through that slot in the model, Exhibit 2?

Ans. Into this slot is now inserted a piece of rawhide—fulled rawhide.

Q. 11. What, if anything, holds it in that slot?

Ans. A set-screw is put through the shaft to hold the leather, the rawhide.

Q. 12. Is that set-screw the same as those described in the patent?

Ans. It is the same.

Q. 13. In practical operation have you used machines such as are described in the patent for fulling rawhide?

Ans. I have always used them as described in practical operation.

Q. 14. In practical operations state whether these set-screws penetrate the hide or whether they always remain on the surface.

Ans. They remain sometimes on the surface as the pressure is put on; sometimes they go through; am not very particular about that. They generally remain on the surface.

Q. 15. When they remain on the surface how does it operate to hold the hide?

Ans. It holds the hide by a pressure—compression.

Q. 16. What is the hide between where it is so held?

Ans. It is a piece of soft rawhide or hide.

Q. 17. What surfaces is it between that hold it in place?

Ans. It is between the clamp, but it is the hide.

Q. 18. What constitutes the clamp?

Ans. The two pressing surfaces, the screw and the shaft.

Q. 19. Is one of these surfaces the side of the slot?

Ans. One of these surfaces is the side of the slot.

Q. 20. And the other is the point of the screw?

Ans. The other is the surface of the screw.

Q. 21. The surface of what part of the screw?

Ans. The end opposite where the wrench is put on.

Q. 22. The patent says: "C C C are vertical pins or rollers set in the rings D and D^1, the lower one, or D^1, being firmly attached to the frame by bolts *c c*." Will you point out in the model these vertical pins or rollers mentioned in the patent?

Ans. They are these round steel bars standing in a circle.

Q. 23. Of what are these circles made?

Ans. The circles above here are made of iron; these are brass.

Q. 24. I do not mean the material, but in what form are they made?

Ans. They are in circular form.

Q. 25. The patent speaks of "rings."

Ans. Well, that is correct.

Q. 26. Point out the upper ring to the jury.

Ans. That is a ring and that is a ring. You can see the circle below just the same as above.

Q. 27. Are these the two rings mentioned in this patent?

Ans. They are the two rings mentioned in the patent.

Q. 28. The patent says that the lower ring D^1 is firmly attached to the frame by bolts *c c*; will you point that out?

Ans. That is this lower part here.

Q. 29. What is it fastened to?

Ans. That is the frame here, the floor, the lower part; that is the frame.

Q. 30. That part in the model represents the frame, does it?

Ans. That represents the frame.

Q. 31. Where are the two bolts *c c* that fasten it to the frame?

Ans. They are here, projecting.

26 Q. 32. The patent says: "A bevelled wheel, E, is attached to the vertical shaft B, which is actuated by the bevelled pinions F F placed on the horizontal driving shaft G. This shaft has a pulley, H, for driving the machine." Are those parts shown in the model?

Ans. They are not shown in the model.

Q. 33. Where would they be if they were shown according to this patent?

Ans. They would be underneath here—where the crank is.

Q. 34. To what would they be attached?

Ans. One wheel would be attached to the shaft and the other wheels would be attached also to the shaft, running crosswise.

Q. 35. How do they operate as described in the patent?

Ans. They operate in turning the shaft as the crank does now.

Q. 36. As the crank does in this model?

Ans. As the crank does in this model.

Q. 37. The patent says: "An iron weight or press is employed for crowding the coil of hide down after it has received the forward and back action around the shaft." Will you show that to the jury?

Ans. That is the weight I put on top of the shaft for the purpose of crowding it down as desired.

Q. 38. The patent says: "An iron weight, I, having an opening through its centre for the vertical shaft and vertical grooves *i i* in it to prevent its turning." Will you show the jury the opening through its centre for the vertical shaft to pass through?

Ans. That is the opening in the centre through which the shaft goes.

Q. 39. Where are the grooves which prevent its turning?

Ans. The grooves are here on the outside, you may see from a distance, corresponding with the bars in that drum.

27 Q. 40. Against what do these grooves fit to prevent its turning?

Ans. They fit against the bars inside.

Q. 41. How many of these grooves is it absolutely necessary to have in order to prevent the weight from turning in practice?

Ans. I have had them in practice like this here shown. I have not tried how few might be used. I think one would do it, or more, in practice.

Q. 42. The drawings of your patent only seem to show two of such grooves. Why have you made the model with so many grooves?

Ans. Well, in the drawing a number of grooves are left out on account of the convenience of the draughtsman who made the drawing. He left them out for convenience sake. Symmetry would demand they should all be there if they were complete.

Q. 43. Is it necessary to the practical working and operation of the machine to have more than two or more than one?

Ans. No; it is not necessary.

Q. 44. Does it make any difference in the actual, practical working or operation of the machine whether it has one or more?

Ans. No, sir.

Q. 45. With what kind of a motion is that shaft operated when the machines are in practical use?

Ans. This shaft here is moved by steam power through intermediate shafts and pulleys.

Q. 46. I asked what kind of a movement it had, not what kind of power.

Ans. It has a forward and backward movement. It turns about ten times, or eleven or twelve, one way and then when the hide is all wound up it turns back again the other way.

Q. 47. What part of the hide do you usually fasten in the slot in the first place?

Ans. I take the snout of the hide first—the fore part of the hide.

28 Q. 48. How do you manage to get hides into the crib so that they will fill it full?

Ans. The hides are inserted into the slot, into this opening, and a socket wrench is inserted about at a right angle to take hold of the screws and set the screws up.

Q. 49. That fastens the snout of the hide in the shaft?

Ans. That fastens the snout.

Q. 50. How many hides do you usually put in at a time?

Ans. I put in from three to eight hides, according to the size.

Q. 51. Are all of those hides fastened in the same slot?

Ans. They are all fastened in the same slot on the same shaft.

Q. 52. Do you always use the same number of set-screws in practice, whether you have three hides or whether you have seven?

Ans. Oh, there are more set-screws than one in here; they are fastened, as many as I want.

Q. 53. The question is whether you always use all of them or not.

Ans. I do not use them always.

Q. 54. When is it you use a part of them and when is it you use them all?

Ans. When I have few hides in I use a few of them, and if I have many hides I use, perhaps, all or nearly all.

Q. 55. Is that slot and those set-screws anything more than a very ordinary mechanical device?

Ans. I consider it an ordinary mechanical device.

Q. 56. Is it a device that every mechanic easily understands and knows all about by its use in other places?

Ans. I believe that — is a simple mechanical device that any mechanic in the country understands without any difficulty.

Q. 57. Now, when you fasten the snouts of the hides in that shaft at first where does the body of the hide remain?

29 Ans. The body of the hide is outside when the hides are being fastened in the shaft.

Q. 58. Outside of what?

Ans. Outside of the drum; hanging outside.

Q. 59. Outside of that crib; you have been calling that drum a crib. How are they got inside of the crib?

Ans. They go inside the crib as they hang outside here by letting the shaft go on that way, the weight being in that position, and the hide goes in that way.

Q. 60. It is drawn in by the shaft as it is wound up, is it?

Ans. It is drawn in by the shaft as it is being wound up.

Q. 61. Now, how nearly full do you fill the crib with hides as you usually use it?

Ans. I fill it nearly full, so far as it is practically safe.

Q. 62. What do you mean by "practically safe"?

Ans. If I was to get too many hides in there it would crowd the hides too hard or it would—well, crowd the hides too hard.

Q. 63. What would be the result of that?

Ans. It would either tear the hides off or it would burn the hides—overheat them.

Q. 64. What is the use of that weight I being placed, with a pressure put upon it, on the edge of the coil of hides?

Ans. The use of this weight is to regulate or confine the space in which the hides have to move forward and backward; to increase, if desired, the density between the layers of the hides to produce greater friction.

Q. 65. If the machine is going at a given rate of speed and you put a large amount of pressure on that weight what effect does that produce on the hides?

30 Ans. Under a given rate of speed if more pressure is put on more heat will be generated inside.

Q. 66. Where is that heat generated and what does it act upon?

Ans. The heat is generated between the layers of hide that keep going one over the other, and acts upon the hide itself, warming it, making the water that is probably in the hide evaporate, and softening the tallow that is used to go into the hide.

Q. 67. Suppose you were to use the machine without using that weight, I, without any pressure upon it, what would be the difference in the action of the machine upon the hides, as compared with using the machine and weight I, with a large amount of pressure on the weight I?

Ans. The machine without the pressure would not affect such a

motion and heat as is necessary to loosen the fibres of the hide. It would not work any effect. The machine would be a failure without the weight.

Q. 68. A failure in what respect?

Ans. Would not soften the hide thoroughly.

Q. 69. It would go through the mechanical motions of turning in one direction and the other, winding the hides up in one direction and rewinding them in the other, would it not?

Ans. It would move, but it would not compel the hide to undergo that short bend in the smallest possible circle, which is essential to softening the hide.

Q. 70. The two claims include: "The vertical shaft B, with a slot, B^1, and the set-screws *b b b*, said shaft having a backward and forward motion;" also, "the pins or rollers C C C set in the rings D and D^1, together with the grooved weight I, substantially as and for the purposes described." State whether each and every one of these are necessary elements in constructing a machine that
31 will work for the practical reduction or softening of rawhides.

Ans. Each and every one of the elements here described is essential to the reduction of the rawhide to pliability.

Q. 71. Is there any other element than those mentioned in the two claims necessary to the perfect working of the machine other than merely applying the mechanical power to drive it?

Ans. There is no other element.

Q. 72. In what position do you usually operate your machine?

Ans. The machine stands up in this position, operated just as it stands here.

Q. 73. Suppose you were to turn it in a horizontal position and apply power to drive it, with the requisite pressure on the weight I, state whether or not in that position it would do exactly the same work that it does in a vertical position.

Ans. If the machine was put in this position and the weight driven in by some other appliance——

Q. 74. All the patent says is "pressure applied to it."

Ans. With pressure applied, it would work just as well as this way.

Q. 75. In that model, what is it that holds the upper ring in place?

Ans. This upper ring is held in place by the pins that have been turned onto the bars. The bars, in fact, hold the ring—the pins here hold the ring.

Q. 76. What other function, if any, is performed by these pins than holding the rings in place?

Ans. These pins confine the hide inside; prevent it from spreading out.

Q. 77. Is it necessary that the crib should be full of hides, and the hides pressed against the crib or pins in order to get a double short enough to largely reduce the hide when the shaft is
32 reversed from one direction to another?

Ans. It is necessary that the crib should be full enough to bring about a pressure.

Q. 78. About how much pressure, as near as you can fix it in some general way, is there of the hides against those outside pins in practical operation?

Ans. I should think there is all the way from—well, I should judge from fifty to one hundred and fifty pounds.

Q. 79. One hundred to one hundred and fifty pounds on how much area?

Ans. On about one hundred and twenty superficial square inches.

Q. 80. That makes it, then, very nearly a pound to an inch, does it not?

Ans. I have never thought about this question; I just give it as it comes into my head.

Q. 81. What size do you make your machine as you use it in practice?

Ans. The diameter here is about, I think, thirteen inches between the rolls, the circle inside the rolls.

Q. 82. And about what is the height of the space occupied by the hides?

Ans. That space, as near as I can remember, is about three feet.

Q. 83. What regulates the distance between the bottom of the weight I and the lower ring, the botton of the machine, in practical use?

Ans. A bar is rigged across here, two stands, and pins, at some distance from the machine, and levers put down as desired.

Q. 84. Do you use that kind of a pressure on the weight I that you have just described?

Ans. I always have used that kind of a pressure.

Q. 85. What prevents the weight I from going way down to the bottom of the machine, in practical use, when you put that
333 pressure upon it?

Ans. The hides that are inside here prevent it from going down in the machine.

Q. 86. Then, when pressure is applied it is the body of hides inside that regulates the distance between the bottom of the weight and the bottom of the machine, is it not?

Ans. It is, sir.

Q. 87. Have you seen any machines used by the defendants in this case for manufacturing this fulled rawhide or leather?

Ans. I have.

Q. 88. When did you see them, and where?

Ans. It was on June 9th, 1881.

Q. 89. Where was that?

Ans. June 8th or 9th, 1881. That was in his present factory, at, I believe they call it, South Attleboro'.

Q. 90. You say "his factory." There are two defendants in this case.

Ans. I mean the factory of William Coupe & Co.

Q. 91. Do you know who the company is?

Ans. I understand it is a man by the name of Burgess.

Q. 92. That is the other defendant in this case, is it?

Ans. I understand so.

Q. 93. What kind of machines were the defendants using in that factory at that time?

Ans. They were using machines like this Royer machine I have described, Exhibit 2.

Q. 94. Was it constructed exactly the same?

Ans. Constructed exactly the same.

Q. 95. In what position did they work them?

Ans. They had their machines in an horizontal position, this way, and mine are that way, vertical.

34 Q. 96. How did they apply end pressure to the hides?

Ans. They used a screw. While I have a lever downwards, they use a screw sideways.

Q. 97. How many false heads or weights did they have in their machines?

Ans. They had two movable weights or heads. There was one here, and they had another arrangement upon the other side, to come together.

Q. 98. Your patent only calls for one. How is it you say they were constructed exactly alike? I don't understand you.

Ans. They had the same contrivance. They had two heads.

Q. 99. Have you a model of the machines which you saw them using, which is constructed as their machines were constructed?

Ans. I have a model.

Q. 100. Is this it?

Ans. That is it.

(Model offered in evidence by plaintiffs and marked Exhibit 3.)

Q. 101. Will you point out to the jury what, if anything, constitutes a crib in the defendants' machine that corresponds to the crib made by your pins C C C?

Ans. These steel bars around here—you can see them from a distance—constitute the crib corresponding with those bars here, or pins I should call them, constituting this crib (Exhibit 2).

Q. 102. State whether or not they are arranged in a circle around the central shaft.

Ans. They are arranged in a circle.

Q. 103. State whether or not the defendants' machines had a central shaft.

Ans. The bars are arranged in a circle, and the defendants' machine has a central shaft, which you may see from a distance.

35 Q. 104. What means, if any, had the defendants for fastening hides into the central shaft?

Ans. They have a slot and a screw to fasten the hides onto the shaft.

Q. 105. Just describe the particular construction of the fastening device which the defendants used in securing the hides to the central shaft.

Ans. They cut a slot into the shaft and use a kind of a piece

of iron, what we call a clamp, and screw it onto the shaft so the hole is filled up.

Q. 106. Where is the hide fixed in that clamping device you have just described?

Ans. The hide is fixed in a groove in the shaft.

Q. 107. What surfaces, if any, is it held between?

Ans. Between the groove of the shaft and the clamp.

Q. 108. How did the defendants operate their machines?

Ans. They operated the machine in the same manner as the machine I first described as mine.

Q. 109. Describe exactly how they operated it, and leave it for the jury to say whether it is the same or not.

Ans. Well, they fasten the hides onto the shaft, into the groove, with a screw and wrench to be used for the purpose, and then, when the hides are outside, they turn the shaft and the hides go in in this manner. The space into which the hides are confined is enlarged at first so that the hide has a chance to go in over, and then the hide is wound up on the shaft in this manner, and then the shaft is turned the other way until it is wound up again the other way, and by this screw the space is diminished. These two heads come together and make the space smaller, inside of which the hides are to turn over.

(The examinanation of Mr. Royer suspended.)

36 *Testimony of Henry S. Burgess.*

(By Mr. WHEATON:)

Q. Please state your name, age, residence, and occupation.

Ans. My name is Henry S. Burgess; my age is thirty-nine; residence, South Attleboro', Mass; occupation, book-keeper.

Q. 2. In whose employ are you?

Ans. William Coupe & Co.

Q. 3. In what business is William Coupe & Co. engaged?

Ans. The manfacture of leather.

Q. 4. Who constitute the firm of William Coupe & Co.?

Ans. William Coupe and Edwin A. Burgess.

Q. 5. These are the two defendants in this case, are they?

Ans. Yes, sir.

Q. 6. What kind of leather do they manufacture?

Ans. Tanned leather, rawhide leather—do you mean the different articles?

Q. 7. How long have you been in their employ?

Ans. Since the 10th of May, 1878.

Q. 8. Please look at that model, Exhibit 3, and state how that corresponds with the machines which these defendants use in the manufacture of rawhide leather.

Ans. I am no expert at all; I have nothing to do with that whatever.

Q. 9. Have you see- the machines often?

Ans. Yes, sir; but nothing to take no particular notice of them.

Q. 10. Don't you know how they are constructed?

Ans. I have had nothing to do with them; no, sir.

Q. 11. Do you not know how they are constructed and operated?

Ans. I have seen them; that is all. I never operated one; never did a minute's work on them at all. I am the book-keeper, not to work in the shop.

37 Q. 12. You have been there ever since 1878 and know something about their business outside of book-keeping?

Ans. No, sir; I don't pretend to know anything about it whatever, because I have had nothing to do with it.

Q. 13. Do you know whether they make their rawhide leather by working it in machinery or not?

Ans. I do; yes, sir.

Q. 14. What books are there that you have kept or that have been kept under your supervision, that will show the number of hides of rawhide leather, as you call it, that have been made by the defendants since you have been there?

Ans. There is a sort of a memorandum book we used to take the number of the feet of each side as it was finished each day. That was after we got established.

Q. 15. Have you any book in which the entire number is consolidated, aggregated?

Ans. No, sir.

Q. 16. What is the stock-book kept by you; what kind of stock do you mean?

Ans. The number of feet of each side.

Q. 17. Does it show the number of hides?

Ans. Yes, sir; the number of feet of each side.

Q. 18. Does the ledger show the number, or can you tell by examining the ledger the number of hides which the defendants have manufactured into rawhide leather?

Ans. No, sir.

Q. 19. During any portion of the time since you have been there?

Ans. No, sir.

Q. 20. Do you know how many machines the defendants are running and have been since you have been there?

Ans. I go through there almost every day, but I haven't it on my mind; I think I could tell; guess at it; something of that sort.

38 Q. 21. Will your books show that?

Ans. No, sir; we have got the books here which show the number of feet of each side.

Q. 22. Do you mean the books will show the number of hides or show the aggregate number of square feet?

Ans. What I mean by that account book is that after they are finished, ready to be trimmed and then assorted and packed up, to be sent away, that is the time we take the account. A short time ago we commenced to take the number of hides that were finished in what we call the rawhide room. That we never have done until

lately; but the number of sides that I speak of that we take the number of square feet of is when they are ready to be trimmed and after they are trimmed and marked.

Q. 23. Will you pick out the right book that will show the number of square feet which the defendants have manufactured? (Book produced.) Can you tell from that book the number of square feet of rawhide leather manufactured by the defendants the first year you went there?

Ans. No, sir.

Q. 23½. Can you tell the number of sides of rawhide leather which was manufactured by the defendants the first year you went there?

Ans. No, sir.

Q. 24. What can you tell by that book?

Ans. It was a new business. I was new at the business of book-keeping, and this was a new business and we didn't exactly know what to do or how to keep it. The first record there, as I have it, is Oct., 1878.

Q. 25. What do you mean by this being a new business?

Ans. If you will let me speak before I answer that question, I see by going back here that there is rawhide in August, 1878.

Q. 26. That book is one of the defendants' books, is it?

Ans. Yes, sir.

Q. 27. Now, what do you mean by its being a new business?

39 Ans. Well, the rawhide business was; we had just commenced the manufacture of it. I say it was a new business to me, book-keeping. I had only kept books a short time before, and I didn't pretend to be a book-keeper when I went there. Of course it was all new to me, about keeping these different accounts.

— 28. What does that entry mean, which you have read, of rawhide in August, 1878?

Ans. As I see it here and infer from it, the date is first given here and then the number of sides.

Q. 29. What is the number of sides?

Ans. The first day of August is 65.

Q. 30. The number of sides the first day of August?

Ans. Yes, sir.

Q. 31. In what condition were those 65 sides that caused you to put that entry on the book?

Ans. Because they were ready to be sold, what we call finished.

Q. 32. They were finished rawhide leather at that time, were they?

Ans. Yes, sir.

Q. 33. When is your next entry?

Ans. The 5th.

Q. 34. What is that?

Ans. One hundred — twenty-one.

Q. 35. At that time did the defendants have as many machines for manufacturing rawhide leather as they had afterwards?

Ans. No, sir.

Q. 36. Do you remember how many machines they had at that time?

Ans. I do not; no, sir.

Q. 37. Between the 1st and 5th of August, 1878, they had finished 56 sides of rawhide leather, had they?

Ans. You mean these two dates together, the 1st and 5th?

40 Q. 38. After the 1st and before the entry was made on the 5th, say between those two entries.

Ans. Between the 1st and the 5th?

Q. 39. Yes; or at least between the making of those two entries, one of which was on the 1st and the other on the 5th of August.

Ans. I don't quite understand your question.

Q. 40. According to that book, how many sides of rawhide leather did the defendants finish or manufacture after the entry was made of August 1st, 1878, and before the entry was made of August 5th, 1878?

Ans. It would be 121—that is, the 5th, 121 sides.

Q. 41. Then the 121 does not include the 65 first mentioned?

Ans. Oh, no, sir.

Q. 42. What is the next entry?

Ans. August 7th.

Q. 43. How many sides of rawhide leather had they finished then?

Ans. Eighty-seven. What I mean by that finished is they are trimmed, and then we count them.

Q. 44. Finished so they are ready for the market?

Ans. Yes, sir; they are trimmed, and then we take the count.

Q. 45. Add up and see how many sides of rawhide leather the defendants manufactured in the entire month of August, 1878.

Ans. I don't know when it was added up, but I have got it added here 1,033 sides.

(Witness was asked by counsel for plaintiffs to obtain from the books and present a statement as to the number of sides of rawhide leather made by the defendants from—

First. The beginning in 1878 to July 14th, 1879.

Second. From the 14th of July, 1879, the number of sides for each year up to the 14th day of each succeeding July, until the year 1884.

41 Third. From the 14th of July, 1884, to March 27th, 1885.

The examination of the witness was suspended in order to allow him to make the necessary computation.)

The Witness: I didn't keep these records myself; not all of them.

Q. 46. But they are books kept by the defendants through their book-keepers?

Ans. Yes, sir.

Testimony of Herman Royer (Recalled).

Direct examination resumed.

(By Mr. WHEATON:)

Q. 110. Explain a little more fully the diminishing of the space by means of the screw that you mentioned in your last answer.

Ans. The diminution of the space I spoke of means the screwing together these two heads, these two discs that are operated by this screw here; that middle wheel turns the two on the side at the same time and there are threads cut here right and left, there and there, and they take hold of a nut, and the nut shoves together the heads, so it comes together. As you turn this screw one way or the other, this will allow them to come together or go apart.

Q. 111. What was between these two sides in the defendants' machine when they were operating them?

Ans. Between these two sides is the hide that is fastened to the shaft, which shaft is turning one way about that fast, something similar, and then again back until the hide reverses the other way.

42 Q. 112. What was the effect upon the hides of diminishing the distance between the two heads at each end of the coil of hides around the shaft?

Ans. The effect on the hide was that it would be softened.

Q. 113. Would it bring any pressure to bear on the hides?

Ans. Oh, yes, the pressure is brought on the heads according to the judgment of the person that operates it.

Q. 114. How does the pressure brought to bear by the defendants by means of these two heads and these screws upon the coil of hides between the two heads compare with the pressure brought to bear in your machine by means of pressing upon the weight I mentioned in your patent?

Ans. The effect of operating this machine upon the hides is identical with the effect upon that machine. Both of them go through the same motion, which motion produces in both machines the exact effect.

Q. 115. What do you call the article manufactured by you—at least what have you been calling it in your machine?

Ans. I have called the article that I have manufactured in my machine fulled rawhide.

Q. 116. What do the defendants call the article manufactured in their machines?

Ans. I do not know what the defendant himself personally has called it, as I remember it; I understand they call it mechanically prepared lacing.

Q. 117. How does the article manufactured by the defendants in these machines compare with the article which you have manufactured in your machine in all of its properties?

Ans. The article manufactured in the defendants' machine (Ex-

hibit 3) and the article manufactured in that machine (Exhibit 2) are alike. There is no possible difference.

43 Q. 118. How long have you been engaged in manufacturing this article of fulled rawhide?

Ans. I am now nineteen years in it, or twenty years, since I first commenced with it.

Q. 119. What means have you of knowing what different machines have been used or attempted to be used for softening hard rawhides by mechanical action?

Ans. I have seen and heard and read what has been done and is doing in the business of softening hides or leather.

Q. 120. What devices, if any, were used before you and your brother invented this machine for softening rawhide by mechanical action?

Ans. I have heard that rawhide is beaten and boarded and tanned. I have heard and read that in Russia they manufacture rawhide by hand in a very simple manner—that is, when the hair of the hide has been removed they cut the hide in four longitudinal pieces, split the hides in the middle from head to tail, and cut the sides again, and fasten these strips overhead on a strong iron pin, and then they put the weight below on it, and take two bars crosswise, so that the strain is on each of the four corners, and then two men pass these bars up and down, making the block spin one way and spin the other way again. That is a practical method that had been used in softening rawhide.

Q. 121. When you speak of the block spinning what do you mean by the block?

Ans. A weight was attached to the hide on the lower end to keep the four strips tight, and then the block was spun one way first, and the two bars were above that way, and then they would come down that way again, and when the block was out they came to again, and the block kept spinning that way rapidly, and they came back again and both ways, and that is the way they worked.

44 Q. 122. As the block spun around what operation, if any, did that have on the strips of hide?

Ans. It had the operation of twisting the hides strong one way and then taking the pressure off and going around the other way again like a rope.

Q. 123. Do you know how the cost of softening rawhide by mechanical action, by any other known devices than as described in your patent, compares with the cost of manufacturing or softening rawhides by mechanical action in a machine which contains the combination of devices named in your patent—that is, the central shaft, with means for fastening the hides to the central shaft, a weight on which pressure may be applied on the coil of hides and the crib formed by the row of pins in a circle around the shaft?

Ans. I know.

Q. 124. Do you know whether there is any difference or not in the cost between using any of these old devices and using a machine like yours?

Ans. I do know there is a difference in cost.

Q. 125. How nearly can you approximate to what that difference is?

Ans. Well, the difference is a matter of 84 or 85 a hide.

Q. 126. Was there ever any machine made prior to yours for softening rawhide, in which the hides were wound and rewound within a crib or cage upon a central shaft?

Ans. There was not.

Q. 127. Do you know whether or not the difference between the cost of softening the rawhide by mechanical action in your machine and doing the same work by hand or by any other devices known would be more or less than one dollar per hide?

Ans. I know it will be more than one dollar per hide.

45 Q. 128. In which would the hides be softened the cheapest, in your machine or in the other devices?

Ans. In my machine it would be made the cheapest.

Q. 129. When did you first know of the defendants using machines for softening rawhide, such as they are using?

Ans. Well, I heard about it from a party in New York, to whom I was selling lacing, that there was competition down here in the east.

Q. 130. About when was that?

Ans. Well, so far as I recollect now, in 1876, I should judge.

Q. 131. What, if anything, besides the mere softening of the rawhide by mechanical action is necessary in order to manufacture the kind of lacing which you and the defendants are manufacturing?

Ans. Oh, there is a stuffing necessary, a preparation of tallow or grease, a mixture of that with tar, wood tar, to assist in the fulling of the hide and to also perfect the leather to make it useful—that is, the rawhide must be preserved against mildew and against attacks of vermine or rats. If plain simple rawhide made soft would be laid around in a store or in a shop, the insects would attack it or the rats would eat it or dogs would go at it wherever they have a chance.

Q. 132. When, to your knowledge, was this kind of lacing manufactured or full rawhide put on the market for sale, or, rather, when was it first manufactured—yours or anybody else's?

Ans. I commenced in 1868, or somewheres about there—1867.

Q. 133. Describe your experience in manufacturing that and getting it onto the market.

Ans. Well, I might say a brother of mine had been experimenting with some kind of a machine for years previous to the
46 time I commenced, and I had seen the very same machine that he was experimenting with. It was a machine that was horizontal, and it had a revolving shaft, but it didn't have any end pressure on, and my brother had been a couple of weeks at it between the time he commenced and gave it up in about three months, putting a building up and making preparations and getting it up; it was about three months. He lost courage and said it could not be made soft, and if it could be made soft perhaps it would take some big

pile of money to introduce it; people would not buy new things that they didn't know; but I thought if I could make an article that would be so very much stronger than what was known in the market, that was not tanned, not treated with alkalies or acids—I mean the tallic acids—I could have a good thing in manufacturing a very strong leather, that would be soft and tremendous strong, so I thought it would be worth my while and what money I had saved to experiment in it. I told my brother of it, and he says, "You never will be satisfied till you lose your money, and then you will have less." Well, I had it in my mind, and we lived together in one room, two rooms, and I told him what I was going to do, and he gave me some advice and hadn't much hope. He thought it wouldn't go, so I went again and designed a machine, and told him what I was going to do—what dimensions I would put into it—and I tried end pressure, and had a machine made and started. Well, it took a long time before I was convinced that a hide could be made thoroughly soft, and there were a very few hides made. It was an experiment throughout. I didn't know whether it would work. I hung onto it, and thought if I ever succeeded in making it thoroughly soft that the leather would sell and would be
47 sold in factories as belting and as lacing. Of course, I knew it would be very strong if I didn't use acids or alkalies in it that would eat it or destroy it. I finally succeeded in making leather thoroughly soft and permanently soft and in making it so that it will not be attacked by dogs or rats or vermin or by mold. It resists mold better than the tanned leather.

Q. 134. What else did you do to accomplish that result besides using this machine?

Ans. I used no special means.

(Objected to and ruled out.)

Q. 135. After you had completed the article of fulled rawhide, as you call it, and for the purposes of this examination I will call it so, where, if anywhere, did your article come in competition with anything in the shape of leather that was manufactured by the defendants?

Ans. It came first in competition in New York, and then afterwards it came in competition in San Francisco, where I resided. The fulled leather I supposed to be manufactured by William Coupe & Company was kept for sale in Sacramento—that is a town near San Francisco—and I have heard that it was sold in San Francisco. I have seen it sold and used in Sacramento.

Q. 136. When, if at all, did you succeed in making and selling your fulled rawhide for enough to pay you the cost of manufacturing it?

Ans. Oh, I commenced to do well in 1871; I noticed the strength of the business. These men who used the goods were astonished by its strength, and I could demand a price that would recompense me for my trouble, waste of time and money.

Q. 137. How much of the time from 1867 to 1871 did you put in in trying to produce your finished article, if any?

Ans. I put in my entire time and energy.

48 Q. 138. During those years from 1867 to 1871 did you work at a profit or at a loss?

Ans. I worked at a loss.

Q. 139. When was the first that any person besides yourself manufactured this article of fulled rawhide, fulled leather?

Ans. I think the first machine was put up in Philadelphia by a brother of mine; an experimental machine.

Q. 140. Do you know when that was?

Ans. I might look at some papers; I do not know the particular date now.

Q. 141. Well, at or before or after you had put your completed article of fulled rawhide upon the market?

Ans. Oh, it was after I had the goods put on the market.

Q. 142. Can you give an idea how long after?

Ans. Oh, it was a year after, or something of that sort.

Q. 143. When, if ever, did you first ship any of your fulled rawhide to the Eastern markets?

Ans. I shipped in 1872, in January.

Q. 144. How long did you continue to ship it in 1872 to the Eastern markets?

Ans. The shipments ceased all with the year, about 1875; in 1876 a little had been sold.

Q. 145. Do you know what caused your shipments to the East to cease?

Ans. The infringement in the East caused it.

Q. 146. What do you mean by the "infringement"?

Ans. Well, parties who manufactured on this side of the continent, in St. Louis, in South Attleboro', and some party in Chicago.

Q. 147. Manufactured what?

Ans. Manufactured the article that I was manufacturing—fulled rawhide.

49 Q. 148. Now, when you first commenced shipping your fulled rawhide to the East, state whether there was any such article as that known in the East except your own.

Ans. There never was such an article in the market as I have manufactured, of equal strength and pliability.

Q. 149. Up to what time?

Ans. I brought it into the market. There were no such goods made. They were very desirable, spoken of, and wished for, but nothing further.

Q. 150. Do you know what is understood by tawed leather?

Ans. Yes, sir.

Q. 151. What is it?

Ans. It is leather prepared by alum and other chemicals, such as potash, soda, acid.

Q. 152. Is any tannic acid used in them?

Ans. Not tannic acid, but metallic acid.

Q. 153. Now, what is the difference between tawed leather and tanned leather, or that which is prepared by tannic acid?

Ans. Well, the difference is that the tanned leather proper is an

insoluble combination of tannic acid—that is, vegetable acid—with the fibre of the hide, and tawed leather is merely the intermixture of minerals, salts, alum, potash, soda, and, perhaps, also gambia is used in tawing, in different ways.

Q. 154. Now, name some of the articles that are familiar to everybody and which are known as tawed leather and some which are tanned leather strictly.

Ans. Boots and shoes are always made of tanned leather; harnesses. But leather for factory uses, that is wasted very quickly, worn out very rapidly, such as lacing and loom leather for weaving looms, is generally made of tawed leather.

50 Q. 155. What are moroccos and gloves made of generally?

Ans. They are made by tannic acid. Glove leather is tawed. Morocco, properly speaking, is tanned; sometimes it is tawed also.

Q. 156. Now, what difference is there in the process between your fulled rawhide and the tawed leathers that you have mentioned?

Ans. There is this difference: That the hides manufactured mechanically, as in contradistinction to chemical preparations, any mechanically prepared hides, when they are right, are a good deal stronger, perhaps doubly as strong, and last longer than the others, and they are tougher; they are not blown up; I mean from a standard, that from exactly similar sides; and this would remain for a great many years perfectly unchanged and undisturbed, while tawed leather will wear out in a very short time; sometimes even in a couple of months, or even a year if it is stored away in a store it will become what they call rotten. This last is improved in the plan that I have invented.

Q. 157. How long, to your knowledge, have tawed leathers been manufactured?

Ans. I have known of tawed leather since my years when I was in school.

Q. 158. State whether or not, in the uses that you made of your process after the machine was completed, you used any chemicals.

Ans. I never used any chemicals.

Q. 159. State how the hides are prepared to be operated upon by this machine.

Ans. The hides first, when I purchased them, are soaked and thoroughly softened; whether they are salt or dry makes no difference; they must be perfectly soft. Then they are what is called sweated.

51 Q. 160. What do you soften them in?

Ans. In water; in pure water, which is renewed several times during the two days or eight days, in either case, as the hides are green or dry.

Q. 161. What next?

Ans. Then they are what is called sweated and the hair scraped off.

Q. 162. What is the object of sweating them?

Ans. That is to facilitate the coming off of the hair.

Q. 163. What next?

Ans. Then, when the hides are cleaned, they are suspended to

dry; hung up upon a loft and made perfectly dry and hard, resembling this piece you have seen here on the table.

Q. 164. (A piece of rawhide shown to witness.) Is this a piece of rawhide in the condition you have just described it after being unhaired?

Ans. It is.

(Piece of rawhide put in as "Exhibit 4.")

Q. 165. After the hide is thoroughly hardened as you have described, what do you next do before it is put into the machine, if anything?

Ans. That hard, dried hide is dampened, immersed in water, so that it gets mellow, semi-dry.

Q. 166. How mellow do you get it before you put it in the machine?

Ans. Make it so that it will bend without bending in creases.

Q. 167. Is it saturated with water?

Ans. Well, no, it is not soft like tripe and so on; like a hide when it would be—it is medium. It is in the condition that if it is bent that way (illustrating) it will bend a little like this, now, and, by bending, of course, the fibres separate. That is the principle of the action. If it is hard it will not do it well.

52 Q. 168. You speak of separating the fibres; explain that by the mechanical principles of your machine.

Ans. Well, a hide consists of, as it were, a net of fibres. It looks now like a horn, because dried and hard, and the fibres are, as it were, glued together, but when the hide is made partially soft by water, then the action of the hide will part these fibres; they come apart, and, by using the stuffing I have mentioned before, the moisture of the hide goes out; as the hide gets warm it evaporates, and in place of the water comes the tallow and the stuffing; that surrounds the fibres, and the tar and the tallow goes between the fibres and keeps them from going together afterwards; then they remain soft. There is no chemical action on the leather; it is merely mechanical, in contradistinction to common tanning, in which the hides are immersed in some kind of liquor. That is the difference—one is a mechanical preparation and the other is what is called a chemical preparation.

Q. 169. Suppose you were to keep bending back and forth that "Ex. 4" that you have in your hand of hard rawhide, what would be the effect upon it?

Ans. It would just bend on some kind of lines and creases; concentrate there. You can see now, if you want to.

Q. 170. State whether it will become soft or not on those lines and creases.

Ans. It will not become really soft unless it is dampened; it can be made to be soft if it is made damp and worked properly.

Q. 171. Suppose a hide is thoroughly saturated with water or with grease and you run it in the machine; state whether or not it has the same effect on the fibres in separating them that it
53 does when it is put in only semi-moist.

Ans. If the hide is perfectly wet it will bend, but it will have no effect on the hide; it will go all away again; it must be ina half-and-half condition.

Q. 172. Now, after you moisten a hide—semi-moisten it, as you used the expression—what is the next step you take in the manufacture?

Ans. Then, when it is damp, it goes into the machine, and it is worked there, as I described before, for some length of time; then it is taken out and stretched, made a little straight, and then the stuffing comes into it; a mixture of tar and tallow is spread over it on both sides; then it is fastened again. We fasten it down by the shank by one hind leg. We fasten it by the shank again, and then it goes in again into the machine, and then the bending motion goes on in another direction, first from head to tail and then over diagonally from the hind leg crosswise, partially diagonally.

Q. 173. What next?

Ans. Then, after awhile, it is taken out again and then put on the other leg.

Q. 174. What do you mean by putting on the other leg?

Ans. I mean the shank of the hide that was once the leg of the animal. The hide is fastened again and we run it diagonally the other way with stuffing again.

Q. 175. You mean it is fastened by another shank or at another place?

Ans. Yes, sir; and those three times generally finish a hide. If it should be a stubborn hide—a hide which is very hard—we pass it in again a fourth time. Sometimes two times will do.

Q. 176. Now, on an average, how long is a hide kept in one of these machines altogether—that is, aggregating the three different times you put it in? I mean how long is it kept under the mechanical action of the machine.

54

Ans. Well, half an hour, an hour, an hour and a half, or two hours at a time.

Q. 177. What makes so much difference in the length of time?

Ans. According, as some hides are off of starved cattle. These hides do not separate so easily. Some hides soften easily, and at certain seasons of the year they work much easier than those which come from starved cattle or cattle that have gone through some hardship and are hungry.

Q. 178. You say they are kept in from half an hour to an hour and a half at a time. What do you mean by "at a time"?

Ans. I mean they are passed into the machine, and then the machine keeps running backward and then again the other way, and a man attends to it and sets that weight up properly, and as the softening increases that weight is permitted to go down also.

Q. 179. My question is how long a time, on the average, a hide is kept under the mechanical action of the machine—that is, including all the different times that it is put into the machine.

Ans. I should think, putting in five hides, about five hours or less.

Q. 180. What difference is there as to the size and texture of different hides?

Ans. Well, there are hides that weigh 80 pounds, and there are hides that weigh twenty pounds, as they are worked in practice—I mean green salted hides—25 pounds.

Q. 181. What are the heavy 80-pound hides used for if manufactured by this process into fulled rawhide?

Ans. For belting.

Q. 182. What are small hides used for?

Ans. The smaller hides are used for lacing leather, to tie the belts together with.

55 Q. 183. How many hides, on an average, do you work in a day of ten hours on your machine into fulled rawhide?

Ans. Well, ten hides is considered a fair day's work for a machine; average hides, 40-pound hides.

Q. 184. What is an average-sized hide as to weight, weighed when it is green?

Ans. I mean a hide, a green salted hide, weighs 40 pounds.

Q. 185. How many square feet will there be on each side of that hide?

Ans. A 40-pound hide will make about 37 square feet.

Q. 186. That is the entire hide?

Ans. The entire hide.

Q. 187. At what prices did you sell your fulled rawhide before fulled rawhide manufactured by others came in competition with yours in the market?

Ans. I sold it at the advertised price, the full list prices.

Q. 188. What were they?

Ans. Some sold at 33 cents a foot, some at 30 cents a foot, and it sold for 28 cents a foot. I would say 30 cents a foot was the average price.

Q. 189. The average prices that you sold for?

Ans. Yes, sir.

Q. 190. How much did you change your prices, if any, after the fulled rawhide manufactured by others came in competition with yours?

Ans. I used to give the dealers ten per cent. for selling in San Francisco, and that is what I sold first for New York in San Francisco, they paying the freight, and I had to come down to twenty per cent., and finally they wanted me to give them twenty-five per cent., and if the goods did not suit them they wanted to have the opportunity of sending them back and I pay for the freight

56 both ways, and that stopped the business.

Q. 191. Stopped what business?

Ans. I mean the shipping of goods from San Francisco to New York.

Q. 192. Are the prices that you have named the prices at which your fulled rawhide sold for in New York that you shipped to the East from San Francisco?

Ans. Those were the prices—the prices and the discount.

Q. 193. Now, when, if at all, did competition commence in San

Francisco by the sale of fulled rawhide manufactured by others than yourself?

Ans. I have not made a note of the date, but it was very soon after I heard of their manufacturing in the East here in this State that the goods came over there and I heard of their being in a store and I saw some of them being sold, being stamped and marked as coming from William Coupe & Company.

Q. 194. What reduction, if any, did you make in price on your fulled rawhide you sold in San Francisco when competition commenced there?

Ans. Well, I had been selling there to dealers fifteen per cent. off.

Q. 195. I am asking you what reduction you made, if any?

Ans. I have not been selling any; not exporting any. I have kept a local trade.

Q. 196. Do you have all the local trade in San Francisco?

Ans. I have not all. There are three firms now that import there—I mean three different houses.

Q. 197. When, if at all, did other parties commence selling fulled rawhide in the San Francisco market in competition with yours?

Ans. That was very soon after I heard of their manu-
57 facturing here. They sent their goods on there from St. Louis.

Q. 198. When was that as near as you can fix it?

Ans. I think it was 1877.

Q. 199. What reduction, if any, did you make in the prices at which you sold fulled rawhide in San Francisco on account of this competing fulled rawhide coming into the San Francisco market?

Ans. I have not made any reduction. I have kept on the prices I had at first—I mean retail prices; at retail I sold at those prices as advertised, and to dealers I might give a discount of ten and fifteen per cent.; to those that kept a stock, fifteen per cent.

Q. 200. Do you mean by that ten and fifteen per cent.?

Ans. No, sir; either one or the other; if a man does not keep any stock I would not allow him a discount, but if he keeps a stock I always allow him a discount.

Q. 201. What discount do you allow where a party keeps a stock?

Ans. I say fifteen per cent.

Q. 202. State whether or not that was a reduction in the price at which those same parties sold your fulled rawhides before and after.

Ans. Oh, yes; that is a reduction; at the start I gave no reduction whatever; they were glad to have it.

Q. 203. Who was glad to have it?

Ans. Anybody who had use for it; the manufacturers and the dealers; there was a kind of excitement when the goods first came out.

Q. 204. Do you know whether the defendants in this case shipped any of their fulled rawhides and sold them in competition with yours in the San Francisco market?

Ans. I have mentioned they did.

58 Q. 205. When did they commence, if you can tell?

Ans. I remember in 1876 and 1877; know as far as I

can remember. I have not made notes in a book about it, but I remember now.

Q. 206. What effect, if any, had the placing of the defendants' and others' fulled rawhides upon the San Francisco market upon the amount of your sales of fulled rawhide?

Ans. Oh, well, it was kept down to very little; they were selling, perhaps, two-thirds or more than I was selling.

Q. 207. State whether or not you were in a condition to supply the entire San Francisco market with fulled rawhides if competing fulled rawhides had not come there?

Ans. I am perfectly competent to supply the Pacific coast and more.

Q. 208. Did you desire to do so?

Ans. I think I desired very much to do so.

Q. 209. How much profit did you average to make per hide before the infringement or before competing sales in San Francisco?

(Objected to because it includes the price of stuffing the hide; admitted on condition that the testimony taken by itself will be held to be immaterial.)

Ans. There was a profit of about $5.00 and $4.50 as I sold.

Q. 210. Four dollars and a half on what?

Ans. On a hide as I retailed it or sold it by the dozen or by the side.

Q. 211. What would the hides average to sell for when you made $4.50 and $5.00 on each hide?

Ans. They would sell at 30 cents a square foot, estimating a hide of 40 pounds to give 37 square feet, bringing the hide to exactly $14.10; the cost of manufacturing, $2.00, leaving a profit of $5.10, or, if I sold at a discount, $4.50 or $4.55.

59 Q. 212. Fifty or fifty-five what, cents?

Ans. Four dollars and sixty cents.

Q. 213. Now, about how much of this fulled rawhide is sold in the San Francisco market each year?

Ans. That is a kind of question I am not just now prepared to answer because I never took notice of them. I know how many they sell there and where it goes.

Q. 214. You can give an idea of the number, can you not, which will be approximately correct?

Ans. Well, I guess there is—I should judge there is about $25,000 sold.

Q. 215. Twenty-five thousand dollars' worth, do you mean?

Ans. Yes, sir; there may be $50,000 worth; I cannot tell.

Q. 216. In how long a time?

Ans. I mean in a year.

Q. 217. About how many sides do you sell per year of fulled rawhide in San Francisco?

Ans. I do not know just now because I did not prepare for it. I have to separate the lacing sales from the belting sales.

Q. 218. You can give a pretty close estimate, can you not?

Ans. Well, the question is how much I sell.

Q. 219. Yes.
Ans. About $4,000 worth.

Cross-examination.

(By Mr. THURSTON:)

X Q. 220. Mr. Royer, I want first to direct your attention to the accuracies or inaccuracies in this model as compared with the drawing, to tally irrespective of the importance of such identities or differences. I ask you whether you do not find in the drawing of your patent a slot extending nearly the whole length of the central shaft.

Ans. It does.

60 X Q. 221. Do you find a slot extending nearly the whole length of the central shaft in the model you have presented? You do not, do you?

Ans. It does not.

X Q. 222. Do you find exhibited in your patent two set-screws which are for the purpose of clamping the hide to that central shaft, and do you find three set-screws specifically mentioned in the model of your patent?

Ans. I have not counted them.

X Q. 223. Look at the drawings and you will see there are two.

Ans. I have not counted the number of the screws. The difference there I do not think——

X Q. 224. I do not ask you about their importance, but I am asking simply as to facts. Do you find two screws there or not, shown in the drawing?

Ans. I think there are three screws here.

X Q. 225. How many do you find in the model?

Ans. I have one there.

X Q. 226. Only one? Do you find in the model that the set-screw that you have is located in the neighborhood of only one-third of the distance from the bottom plate? Is not that correct?

Ans. What is that?

X Q. 227. Is that screw in the model which you have presented located at a distance of about one-third of the length of the shaft from the bottom?

Ans. It is.

X Q. 228. Is it not a fact, looking now at the drawing of your patent as illustrated in the drawings, that the weight would come in contact with that upper screw which served to clamp the hides at a distance represented upon the scale of this drawing of about one-quarter of an inch only?

Ans. It is.

61 X Q. 229. If that weight should come in contact with such set-screw could it descend any lower to press upon the hides which were in the crib?

Ans. If the set-screw was left outside, it could not.

X Q. 230. The set-screw is thrown outside in the drawings, is it not?

Ans. It is. It can be set down the other way and turned in if wanted.

X Q. 231. You have referred to your brother. Was that brother Louis Royer?

Ans. Yes, sir.

X Q. 232. Is he older than you?

Ans. He is younger than I.

X Q. 233. Was he in the business of experimenting with manufacturing machines for working rawhides prior to your acquaintance with that business?

Ans. Manufacturing? He had one built, that I can say; but he did not manufacture as I understand it. Manufacturing means the constant reproduction of the same article, I suppose.

X Q. 234. When did your brother commence in the business of making rawhide machines?

Ans. He commenced to experiment when I went to San Francisco.

X Q. 235. Why do you emphasize the word "experiment" when I ask you when he commenced to do something with these machines? Was it in 1861?

Ans. No, sir.

X Q. 236. What year?

Ans. I think I can give you the date of my arrival.

X Q. 237. Not your arrival, but when your brother commenced to work upon machines of this description and to make some improvement thereon.

62 Ans. I can fix that by my arrival. I did not take any notice of that date. I arrived April 19, 1863.

X Q. 238. Previous to your entering this branch of business was your brother attempting to establish a business of this character by making machines for the purpose of dressing hides?

Ans. He was attempting to make a business.

X Q. 239. He had produced a machine which he was trying, had he not, and shown that machine to you?

Ans. He had.

X Q. 240. Did that machine have a horizontal crib something like the defendants'?

Ans. It had.

X Q. 241. Did it have also a shaft central through its axis?

Ans. It had.

X Q. 242. Did it have bars circularly arranged around that central shaft?

Ans. It had.

X Q. 243. Had it not the same kind of motion to the right or left as the machine you had?

Ans. It had.

X Q. 244. Did it not have everything that was in the machine except the pressure weight that you have now presented in the present patent?

Ans. It did.

X Q. 245. Your brother showed you that machine, did he not?

Ans. I saw it.

X Q. 246. Did you then propose to undertake to go into the improvement of machines of this kind yourself?

Ans. No, sir.

X Q. 247. When did you commence to undertake the improving of these machines?

Ans. After he had given it up; about four years later.

X Q. 248. You and he together undertook to improve the machine which is the subject of this suit?

Ans. Yes, sir.

63 X Q. 249. You and he are joint patentees?

Ans. Yes, sir.

X Q. 250. Did your brother and yourself have any part in the invention of the machine the subject of this suit?

Ans. Yes, sir.

X Q. 251. He did? He contributed what he had contributed in the former machine, did he not?

Ans. He used the elements of the old machine.

X Q. 252. Did he not use the exact construction—a crib with bars radially arranged about a central shaft and a right and left movement and a right and left rotation of that shaft? Did he not use that?

Ans. Yes.

X Q. 253. Now, all that was added to that prior construction was to make the machine vertical and put in the weight, was it not?

Ans. No, sir.

X Q. 254. What else was added in the machine which is the subject of this suit over the prior construction of your brother? If there was anything, tell us what it was.

Ans. The bars were movable up and down. The slots are movable and there was no appliance to compress the hides, but there were chains around the outside to make the bars come closer together.

X Q. 255. Those bars arranged on the outside were capable of moving forward and backward radially; is that what you mean to say?

Ans. Yes, sir.

X Q. 256. Like the defendants' machine in that regard?

Ans. No, sir. The defendants' machine has springs with set-screws. In that one there were no springs or set-screws; there was just a cham around it. I put that on afterward.

64 X Q. 257. Then the difference was that instead of immovable bars they were radially movable bars? Is that correct?

Ans. They were movable in the first machine that he had made.

X Q. 258. Now, when you and your brother came to the joint business of improving the machine you turned it from a horizontal position to a vertical position, did you not?

Ans. Yes, sir.

X Q. 259. And in that connection you used the weight so that

the weight would press down by gravity upon the hides inside the crib? Is that correct?

Ans. The weight and pressure applied to the weight. Yes, sir.

X Q. 260. And that is what you did together?

Ans. Yes, sir.

X Q. 261. Now, why did you make the machine vertical instead of horizontal? Was it not so that the gravity of the weight would press upon the hides?

Ans. As a method of simplicity in the construction.

X Q. 262. It was to enable the weight, the gravity of the weight, to press upon the hide in a vertical position, when it would not do that in a horizontal position? Is not that correct?

Ans. We had no experiment in a horizontal position to put the weight on.

X Q. 263. Why did you not keep the machine in a horizontal position?

Ans. I do not know just now. My reasons for changing it to the other way were various, but I do not know which I considered at that time.

X Q. 264. Are you familiar with the text of your own and your brother's patent? You have read it often?

Ans. I have read it; yes, sir.

65 X Q. 265. Have you observed that throughout the specification you have specifically drawn attention to the fact that the shaft is slotted and that it is a vertical shaft?

Ans. Yes, sir; that is the way to explain the drawings.

X Q. 266. Have you specifically asserted it to be a vertical column?

Ans. As it is there drawn.

X Q. 267. Now, I have understood you to say in your direct examination that the weight is used and is described in the patent as being employed at the same time with the revolution of the shaft to the right and the left to wind up and to unwind the hides in the crib. Do I understand you correctly?

Ans. Well, the hides are run in first, and then when the hide is in then the weight is put on, and it works then with the weight. I mean this (illustrating): The weight is fixed there, and then the hides go in there, because it would not work so well the other way. The hides go in and then afterwards the weight comes.

X Q. 268. While that shaft is in rotation to the right and the left, Mr. Royer, is the weight exerting a pressure on the hide or not?

Ans. It is.

X Q. 269. That is what you testified to this morning, is it not?

Ans. I have seen no difference. The hides are run in and the weight is on all the time.

X Q. 270. Is not that exactly contrary to the statement in your patent? Let me draw your attention to a passage and ask you to explain it. The third paragraph:

"In order to accomplish our object we employ a machine mounted on a suitable frame having a vertical slotted shaft, to

which is attached at its base a bevelled wheel between two bevelled pinions upon a horizontal shaft. Around the vertical shaft is placed a row of vertical pins or rollers, held in place by
66 upper and lower rings, one of which is firmly bolted to the frame.

An iron weight or press is employed for crowding the coil of hide down after it has received the forward and back action around the shaft."

Ans. Yes. Then this (referring to the model) has gone on here that way, that way, and that way; something of the sort, and then we put that down in addition.

X Q. 271. Then the pressure, according to the patent, is not applied until after the hides have been wound and unwound?

Ans. Well, when they are in the crib in the frame.

X Q. 272. Referring to the next paragraph upon the same subject:

"An iron weight, I, having an opening through its centre for the vertical shaft and vertical grooves *i i* in it to prevent its turning, is placed upon the inside of the pins or rollers, and by pressing upon this weight the hide is compressed edgewise after the forward and backward stretching or pressing is performed lengthwise."

Now, do you not understand that your patent states that this pressure, this weight, is applied after the stretching is performed by the rotary operation of the shaft?

Ans. When this has gone one way and partly stretched the hide, then that is put down; yes.

X Q. 273. As a secondary operation. Again I draw your attention to another passage bearing on the same subject.

Ans. I do not understand there is any wrong or any difference. I could explain it, perhaps, if you would show me clearly. If you would show me the difference—I do not comprehend anything wrong or anything that is conflicting.

X Q. 274. The passage is this:

"An iron weight, I, having an opening through its centre
67 for the vertical shaft and vertical grooves *i i* in it to prevent its turning, is placed upon the inside of the pins or rollers, and by pressing upon this weight the hide is compressed edgewise after the forward and backward stretching or pressing is performed lengthwise."

Mr. LIVERMORE: I think I ought to interpose an objection. The witness was put upon the stand, as far as his patent was concerned, to prove the construction of the machine, not to interpret the patent, not to interpret the language of the patent describing the operation of the machine.

Mr. THURSTON: Not at all.

Mr. LIVERMORE: And we shall endeavor to have a construction given upon it as a matter of law, but we do not think the witness should be examined as an expert in the English language.

Mr. THURSTON: It is in relation to the fact that I ask him.

Mr. LIVERMORE: Well, as to the operation of his machine we cannot stop that.

X Q. 275. Now, take the language of the specification as you find it and what have you to say as to the reason why from 1869 to 1871 your concern was not able to earn any sufficient amount, to use the language of your counsel, to pay expenses for a period of four years? Was it not due to the fact that the machine was constructed just as described in this patent in the particulars I have drawn your attention to and that is why it is a failure?

Ans. Such a long sentence and conditioned so much I do not see how I can give you a straight answer.

X Q. 276. I will put it to you in a simpler form. Why is it that from 1867 to 1871, with this machine in your possession, your business did not pay expenses?

68 Ans. Well, there were other reasons for not making the business pay. First, there was objection to purchasing the goods, and then I did not turn out good goods. I did not understand exactly how to do the thing.

X Q. 277. Do you mean to state as a reason why you did not turn out good goods that you had to make some invention in the kind of stuffing that is put into the hide to preserve it and to cure it?

Ans. I had to obtain and acquire judgment in manipulating the machine and the material that I put in. If you will allow me to make an explanation I can simplify it.

Mr. THURSTON: No.

Mr. WHEATON: Make your full explanation. That is what he asks for.

CARPENTER, J.: You may answer the question in any way you see proper, and if you go outside I shall stop you.

Ans. I was going to say that in getting up a new business in which machinery is used there are two distinct elements to be attended to. The distinction never is made in patents, so far as I know, but I in my observation and notice have discovered the division, and I will state it here. There is in a business of this kind, as in any other, two branches of knowledge; one branch I would call mechanical knowledge and the other I would call technical knowledge. The mechanical knowledge applies, so far as the operation of the machine is concerned, by itself. That is one distinct element. But the technical knowledge applies to a knowledge of the material worked upon. For instance, a person runs a steam engine. The action of the engine is the same all the time—the wheels turn round and the crank takes hold of the wheels and drives them forward—but the burning of the coal, the com-

69 bustion of that, I would say, was technical knowledge. So if you run a flour-mill. The building of the mill is one thing and the knowledge of how the wheat should be applied and handled with the machine is technical. This same thing applies in weaving. A loom is one thing and the wool or cotton which

you operate upon is the other thing. The first is mechanical knowledge, the other is technical knowledge. So in this business there was a mechanical knowledge first and then afterwards technical knowledge. Both had to be acquired by experience and by judgment. That I acquired gradually after many mistakes and errors.

X Q. 278. Your machine worked well, did it, or did it not, after it was constructed—the vertical machine which is the subject of the patent?

Ans. It worked quite well.

X Q. 279. Was there any difficulty in its operation in winding and unwinding?

Ans. It went backward and forward.

X Q. 280. Did it not go backward and forward just as well as it does now?

Ans. It goes backward and forward as always.

X Q. 281. As a fact, is it not true that it was the necessity of some description of stuffing for the hide that was the important thing before this leather was good for anything?

Ans. It was, so far as to make a complete article—it was necessary to have suitable stuffing.

X Q. 282. Is that what you mean by the technical knowledge to which you have referred?

Ans. That is a part of it.

X Q. 283. I understood you to say in the course of your examination that the stuffing was put into the hides prior to the time it was put into this machine. Did I understand you correctly?

Ans. The hide was put into water first to soften it, made partially soft, and then went into the machine.

70 X Q. 284. Did you understand my question?

Ans. Well, I will hear it again.

X Q. 285. (Question repeated.)

Ans. That stuffing was to be put into the hide before it was worked, but not before the first time. It was put in when desirable.

X Q. 286. It was to be put in before it was worked in the machine, was it not?

Ans. If you put the stuffing in afterward it would not make good leather, because we make the hide pliable, and afterwards, when it is made pliable, it is curried and finished.

X Q. 287. Do you remember what you meant by this passage in the specification of yourself and your brother on this point? After describing the machine and its whole operation, then it is said: The hide so operated upon is then treated with oil and tallow in the usual way.

Ans. Well, in the curing of the leather there are several processes and methods for completing the process, and there are different ways of doing that and arriving at the same result, as if finished by hand.

X Q. 288. It is correct, as you have just stated, that the machine

would perform no useful office now even if the leather was not stuffed prior to its being operated upon by the machine?

Ans. Well, a hide can be softened without stuffing in there, and I have always softened it without stuffing. Of course, by putting stuffing in there it works better, but we say it could be made soft if there was no stuffing in there.

X Q. 289. Is it not true, and did you not, within a few moments, remark that if a hide was treated after it came from the machine, with oil or with any stuffing material, that it would be a comparatively poor article?

Ans. It would be not desirable.

71 X Q. 290. Did you alone make the invention which is the subject of the suit here, or your brother and yourself together?

Ans. My brother and myself.

X Q. 291. Have you not directly asserted to the contrary in writing? And in that connection let me show you a letter and ask you if it is your signature and the handwriting of the letter yours (showing letter to witness).

Mr. THURSTON: Let me read it to you.

(Objected to, and admitted.)

Mr. THURSTON (reading):

"SAN FRANCISCO, *May*, 14, 1876.

Mr. Schultz, corner of Easton and Barton streets, St. Louis, Mo.

DEAR SIR: Thinking that your letter of Feb. 29th may demand an answer, well knowing that your sympathies must naturally incline to where your prospective profits seem to be, I nevertheless submit the following to your consideration, leaving the legal bearing for the future. It is true my brother tried to make fulled rawhide some thirteen years ago. He caused a gentleman to advance money under the allegation that he had made a new invention for which he held a patent. When after a few months' experimenting not one hide was converted into leather thoroughly and when Mr. Blumberg found that things were very questionable he discovered that Louis Royer had stated gross falsehoods respecting the originality of the invention, the position of the patent, and withdrew, less a few thousand dollars. L. R. has never invented anything in this rawhide business. For him to make this assertion in the face of so much evidence to the contrary shows a want of any regard for truth. It was I who for four or five years took him into the first patent upon the new and improved machine. I had to urge him into citizenship to be competent, and I paid the patent fees, for which I hold receipts. All the expenses for my experiment were met with my hard-earned money, and were made against the advice of L. R., who never did employ any of his money and who had absolutely no faith in my doings, not even when I had been years in the business. I have been since 1869 in this business, struggling, improving, and perfecting it to its present state. L. R. appeared since 1866 in the S. F. directory as a physician at

the time when I was a machinist. He has been ever since an apparent indifferent looker-on to my business. He went East to perfect his studies, and has maintained himself there on funds coming out of my pocket chiefly. To show my position in this matter I regret to have been compelled to state the above facts for which there is all the evidence at hand.

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I am yours truly, H. ROYER."

X Q. 292. Now, I ask you if the "L. R." referred to is Louis Royer referred to in this joint patent case.

Ans. Yes, sir.

X Q. 293. The statements in this letter are true, are they not?

Ans. Yes, sir; the facts are true.

X Q. 294. Now, I ask you distinctly whether the machine which is described in this patent was not a failure, and have you not so testified in a recent controversy between yourself and these defendants?

Ans. Which machine was a failure?

X Q. 295. The present one.

Ans. This one here?

X Q. 296. Yes.

Ans. Oh, no, that is not what I mean. I have never said so.

X Q. 297. Have you not given your deposition in an equity case between yourself and these present defendants on an allegation of infringement upon the employment of the stuffing patent?

Ans. There is a suit against them.

X Q. 298. Did you testify in that suit as a witness in your own behalf?

Ans. I did.

X Q. 299. You did?

Ans. I think I did.

X Q. 301. Have you any doubt about it?

Ans. Yes; I think I did. Of course, there has been a great deal of testimony taken in the case.

X Q. 302. Were you not examined many days upon it and your deposition put into print, and have you not read the printed copy covering many pages?

Ans. Yes, sir.

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X Q. 303. In that deposition were you not endeavoring to uphold and maintain the importance of that process for stuffing leather with tar, tallow, and resin?

Ans. Yes, sir.

X Q. 304. In the course of that examination did you testify as follows, referring to the present patent in suit and the machine described therein:

"While I was so using the machine and reversing it by hand it often happened that the unwinding and rewinding of the hides would become irregular and the bending or doubling backwards would cease. In such cases the hides would sometimes turn around bodily inside of the cage. Sometimes they would so turn bodily for awhile, and then again resume their action of unwinding and

rewinding. At other times they would wedge tightly in the cage or drum and refuse to move in any direction. In such cases the edges or ends of the hides that were fastened to the revolving shaft would be torn from their fastenings. I have had the edges of the hides, where they were fastened to the revolving shaft, torn off from the hides many hundreds of times. In such cases the machine had to be stopped and drum taken apart in order to get the hides out. The attendant who shifted the clutch to cause the machine to reverse kept constant watch, and as soon as he discovered the least irregularity in the operation of the machine he would instantly either stop the machine or reverse its motion. Sometimes the regular working of the machine could be restored by thrusting a stick between the bars of the drum in such a way as to catch the outside hide between the end of the stick and one of the stationary bars of the cage or drum, and so stop the entire mass of hides from being carried around bodily inside of the drum by the shaft.

"Whenever the hides turned around in a body with the shaft the operation of unwinding and rewinding ceased, and all benefit of the revolutions so occurring would be lost, and the shaft would therefore have to revolve more times in the direction in which it was then running before being again reversed than it would when no irregularities occurred. At other times, after the hides had become partly softened by being worked in the machine, they would pack so tightly in the drum while they were being treated that they would become very hot, and unless the shaft was quickly stopped the hides would be overheated and spoiled.

"For these reasons it did not for a long time seem to me to be practicable to attach to the machine an automatic reversing apparatus."

Now, is not that statement sworn to the truth?

CARPENTER, J.: Will you state the case?

Mr. THURSTON: It is in the automatic reverser case.

74 X Q. 305. Is this statement that I have read correct?

CARPENTER, J.: No; did he say it?

X Q. 306. Yes; did you say this in your testimony?

Ans. Yes, sir.

X Q. 307. You did?

Ans. Yes, sir.

X Q. 308. Now, there is one correction I should make, an error of my own. Was not the testimony from which I have read an extract given by you in a suit between yourself and the present defendants in regard to what is called your automatic shifting apparatus as distinct from the process?

Ans. Yes, sir.

Testimony of Henry S. Burgess (Recalled).

(By Mr. WHEATON:)

Q. 47. How far have you figured up the number of sides made by the defendants?

Ans. I have not added them up as to years. I have got the months and I can give you that.

Q. 48. Well, give us that.

Ans. August, 1878, 1,033 sides; September, 875; October, 722; November, 1,179; December, 554; January, 1879, 1,257; February, 579; March, 673; April, 820; May, 1,262; June, 1,610; to July 14th, 510; from July 14 to the end of July, 854; August there is no account; September, 985; October, 1,429; November, 1,490; December, 1,713. That is as far as I have gone. Those which I have given you, although I have been over a part of them, have only been added once.

(Adjourned.)

75 *Testimony of Herman Royer (Recalled).*

Redirect examination.

(By Mr. Wheaton:)

Q. 309. On your cross-examination you were asked if in the drawings of the patent the set-screw did not project out from the shaft some fraction of an inch, and whether the weight I could slide down over it. Now, in practical operations, state whether or not that set-screw is above or below the top of the coil of hides which is wound into the machine.

Ans. It is below the top of the coil.

Q. 310. Then, in practical operations, would the weight I get down as far as that set-screw?

Ans. No.

Q. 311. The weight I rests on top of the coil of hides above the set-screw, does it not?

Ans. Yes, sir.

Q. 312. In addition to that, what difference is there in the position of the set-screw, whether it is screwed in to hold the hides in place or whether it is withdrawn so that the hides are loosened and taken out?

Ans. Well, when the set-screw is withdrawn it stands out, and if it is put down to hold the hide it goes deeper in.

Q. 313. In what position is the set-screw shown in the drawings in figure 2 where the projection is shown?

Ans. It is shown here as being out.

Q. 314. It leaves the slot there open, ready to insert the hides?

Ans. Leaves the slot entirely open.

Q. 315. Suppose you were fastening hides, inserting them in the slot, would you not be obliged to turn the set-screw in in order to fasten the hides?

Ans. I would.

76 Q. 316. Suppose, in fact, the set-screw were put in, and you did desire to let the weight I slide down over it, state whether or not it would be within the common knowledge of a mechanic to know how to change the set-screw so as to let the weight I slide down over it.

Ans. It would be within the knowledge of a common mechanic—a commonly skilled mechanic—to help himself.

Q. 317. How would it naturally be done?

Ans. By shortening the screw and countersinking it, for the head to go lower down—to go down deeper.

Q. 318. Explain fully what countersinking means.

Ans. Countersinking would mean the cutting away of some material around the bolt or head of the screw in the substance where the screw is standing; cutting it down here so that the head is sunk in beneath the surface. We call that in mechanics countersinking, a very ordinary method, almost seen everywhere.

Q. 319. Are you a mechanic yourself?

Ans. I am.

Q. 320. At what mechanical work have you been employed in your lifetime before you commenced this rawhide business?

Ans. I have been employed as a workman on wood and as a workman in iron, both, in a machine shop, assisting in building locomotives and various other works that happen in a machine shop. I have had the charge of large mills, the largest in the State of Louisiana and the largest in Oregon, before I ever entered this business; was quite competent in experience in wood and iron work; have earned my living as a blacksmith and been well paid for it.

Q. 321. State whether or not it makes any difference as to the length of the slot in the shaft, so long as it is long enough to insert the hides that you desire to.

Ans. It makes no difference, the length of the slot.

77 Q. 322. If the slot is longer than necessary, does it make any difference in the practical operation of the machine?

Ans. It won't make no difference.

Q. 323. In practice do you always use the same number of set-screws in the shaft?

Ans. I use the set-screws in proportion to the number of hides. If they are small hides and many, I use them according to convenience. If I don't use them they are screwed down without holding any hides, or taken out, as the case may be.

Q. 324. When is it that you use more set-screws, and when is it that you use less?

Ans. When I have smaller hides I use more; when I have hides larger I use less.

Q. 325. You were asked regarding the machine that Louis Royer was using before you commenced operations on yours; when was it that Louis Royer was using that machine?

Ans. It was in the spring of 1863.

Q. 326. You say that that had a central shaft?

Ans. It had a central shaft.

Q. 327. Placed horizontally, with a slot in it, etc., and bars arranged around it; how were those bars arranged around the central shaft in the Louis Royer machine?

Ans. Well, there were two heads. The shaft was horizontal and the bars were edgewise, set around it, but the ends of the bars were

kept in discs on both sides and that were around the shaft, and there were slots from the centre running off, and the bars could be made far apart from the shaft or closer up, and the bars were held like these in here. These slots were similar to these (Exhibit 3), only they were close on the outside. And then the bars were not
78 kept tight with the screws on the ends; they were perfectly loose, so you could raise them up and drop them down. And then there was a chain wound around here and a chain wound around on that side.

Q. 328. Outside the bars?

Ans. Outside the bars; and when the hide was fastened and passed in and wound around the shaft, then the bars were drawn together by the chains, and the upper ones rested heavy on the shaft, and lower ones were comparatively loose, and in that manner it worked. But of course the bars were not rounded; they were wrought-iron bars, and it was a kind of clumsy affair. The hides would sometimes crowd against the bars here and cut, and, in fact, most of them were cut, and it was a very slow process. It worked and worked from morning to night, and there were only parts of the hide into leather, the middle part. The skirts, the tail part, and the head part and the belly would remain almost all raw, and that is the way the machine worked. It was in that position, horizontal. There was no means of setting up the ends. The method of confining the hides was by chains; that was all.

Q. 329. Would the bars that were around the lower part of the shaft hang in those chains?

Ans. The bars on the lower end would hang on the weight of a chain; the weight of the bar was held up by the chain.

Q. 330. It would not be the lower end; it would be the lower side?

Ans. The lower bars.

Q. 331. Were those bars fixed in a rigid circle around the shaft, so that the shaft was in the centre of such circle?

Ans. As I said before, the bars were not fastened on the ends. They were movable, perfectly loose, so they could come up and down by the expanse of the hides around the shaft. If the
79 hides were thick on the shaft the bars would be raised up, the upper ones, and the lower ones come with them, and the weight of the upper and lower bars would rest on the hides. The hides took the weight of the upper bars and the lower ones. Of course, those on the sides were neutral; they were sideways.

Q. 332. The slots in the two discs at each end, in which the bars were, were so deep that they would let the bars come close to the shaft?

Ans. They were.

Q. 333. Then the whole weight of the bars and the chains would hang upon the upper side of the coil of hides that was wound around them?

Ans. That is the way it was.

Q. 334. Did Louis Royer ever succeed in making a single hide soft with that machine?

Ans. He has not succeeded; never made a single hide that was soft thoroughly or to a great extent.

Q. 335. What finally became of that machine that Louis Royer was using in 1863?

Ans. Well, after the shop—we had about three months with the shop—was built up the machine was taken outside and thrown out for old iron, and the premises were rented to some other party. A tanner took the premises, and the machine laid outside, and I have never seen it since. I have never seen it for years, but I have heard some one say it was sold; some of the wheels were sold and broken up for old iron.

Q. 336. It was entirely abandoned, was it?

Ans. It was entirely abandoned.

Q. 337. How long after that was it that you and your brother Louis commenced to make the present machine which you patented?

Ans. That was about four years after.

Q. 338. During that four years what was Louis Royer doing?

80 Ans. Well, when he gave up his experiments he went back into a harness shop, trimming carriages, selling harnesses as a salesman, partly worked and partly acting as salesman, and finally he turned to reading medicine; studied medicine there; cut human flesh for a couple of years, and then finally left California and came East here to Philadelphia; hadn't money enough to pay for lectures and they wouldn't let him pass examinations; he might have, perhaps, and went from there to Philadelphia and studied again. That is about enough, I suppose.

Q. 339. Whose idea was it of taking up the effort of making fulled rawhide again?

Ans. I went cruising again. I kept thinking of the lost experiment and urged him again that we will go and try that again.

Q. 340. When you commenced again in 1867 where were you and Louis Royer?

Ans. We were both in San Francisco at the time we went into this machine again; both were in San Francisco. I was working in a machine shop and he was reading medicine. We both occupied the same rooms, two rooms, and we were thinking about it. I was out of employment and had it in my mind to see if I couldn't make this thing go, and talked with my brother about it—what could be done. He didn't have much faith. He was always fainthearted and I kept pushing him, and we both deliberated what could be done and might be done, and the result was a machine that would work.

Q. 341. After you took up the idea in 1867, state whether or not he acted with you in planning and experimenting, etc., with your devices until it resulted in this machine as it was patented.

Ans. He acted with me.

Q. 342. From your present knowledge of what is required

81 in a machine to make rawhides soft by mechanical action, state whether or not that machine, as used by Louis Royer

in 1863, was capable of reducing rawhides to a soft condition by a mechanical action.

Ans. It was completely unsuitable—that is, no amount of skill that a man might use on it could make any one hide into leather.

Q. 343. With regard to this letter which was written by you to Mr. Schultz, on the 14th of March, 1876, state the circumstance under which that letter was written, so far as the circumstances are — connection with the subject-matter of the letter.

Ans. Well, after my brother had been here in the East and in Philadelphia, next to reading medicine, he went to see what could be done with introducing such a machine, and one of the men that he engaged with was a man by the name of Schultz, in St. Louis, and I understood they were going to manufacture; in fact, I was written so by parties who took my leather in New York, and then I knew that my brother was taking all the advantages I had in the the machine, the two other later patents, and using them in connection with this machine, and I thought it was necessary that I should warn them, and so I did, and wrote that letter to Schultz & Royer—that was the name of the firm—that they were infringing on two other patents of mine. In answer to that first letter of mine I had a letter from Mr. Schultz stating that I had no rights in the machine; that my brother was the man, as he understood, and so on, and I felt very incensed at that, thinking it very wrong that my brother should go and sell machines. I was working them and trying, and when I was coming to a point where the goods would be recognized and get a pretty big market for them he ran around and would sell the machines, doing nothing with them but simply selling them. So I wrote them, and then Mr. Schultz wrote me
82 that my brother was the man, I was not, and upon that I wrote this letter that has been shown now here. It was written to Mr. Schultz, and I believe it got into the hands of Mr. Coupe. They both were infringers, and, of course, they both joined together. It was for their interest to go against me.

Q. 344. What were those later patents that you speak of for?

Ans. They were a patent for a stuffing that would prevent rats and mice and mildew—in fact, preserve the leather—and an automatic motion, an attachment to this machine, that I put on the gear after I had been running it by hand. This machine was shifted by hand when I first experimented with it, and then afterwards I put an automatic motion to it, trying where that would be practicable. I knew it could be made to go that way, but whether it would work—because it was always personal attention to it at the start, and I didn't know how to manage it so it would run without attention; and there was also the automatic motion, a combination of an automatic motion with this machine and the stuffing that went with it, that were two essential parts to complete the whole invention, and I knew they were using them—I was told so—and I warned them, and then I had an answer from Schultz, as I said before, that I was not the man; that my brother said he was the man, and that letter was the result.

Q. 345. Did your brother have any hand at all in inventing either of those improvements—the automatic motion and the stuffing?

Ans. He had not. He had no faith in my success after even I was six years in the business.

Q. 346. This letter of March 14th, 1876, is some nine years after you had taken out the patent on the machine. During all of that time what had you been doing?

83 Ans. I had been working on this machine in a small way and experimenting with it, failing a good many times, spoiling some hides—a good many of them, and—well, it was rather discouraging business the first years.

Q. 347. Was it discouraging all the way up to March 14th, 1876?

Ans. In 1876 it was no more discouraging then. I knew then what I could do, because the leather got a good name then.

Q. 348. Were you claiming at that time or believing that your brother and Schultz were infringing those two subsequent patents of yours?

Ans. That is what I had knowledge that they were infringing.

Q. 349. How long had they been using those two subsequent patents, as nearly as you can fix it, at the time this letter of March 14th, 1876, was written?

Ans. That I don't know just now.

Q. 350. Give an idea.

Ans. Oh, that was a short time after they commenced. As soon as I heard they were in the market—that they were selling the leather—I knew what they were doing, and then I wrote that letter. As soon as I noticed they were in the market I warned them.

Q. 351. When did your brother quit operating with you after getting up this machine that is patented to you both?

Ans. He never done anything else but assist me in designing a machine. He had no great hopes; he was always discouraged about succeeding. So far as the mechanical invention was concerned he was interested in it.

Q. 352. How long after that machine was completed by you and your brother before your brother again took hold of the fulled rawhide business?

Ans. That was about some seven or eight years. As soon as he saw the thing was going—that I was making a little
84 money—he then, of course, thought it would be good to have the advantages of the invention.

Q. 353. No matter what he thought. Tell what he did.

Ans. Well, he sold the patent right of the entire completed invention; that part to which he was entitled and those parts I was entitled to.

Q. 354. How do you mean he sold the entire patent right?

Ans. I don't know that he sold that. I wouldn't say, but he made an arrangement with Schultz that he should work the machines; so far, you understand.

Q. 355. You don't mean he made any assignment of the patent, do you?

Ans. No; that I never heard of.

Q. 356. He always retained his interest in the patent until he conveyed it to you?

Ans. Oh, yes; he just furnished machines and took half the profits. That is what I heard. Mr. Schultz wrote me that was the arrangement.

Q. 357. Your brother always retained his half interest in the patent until he conveyed it to you, in 1885, did he not?

Ans. Yes, sir; he retained entire interest.

Q. 358. So far as you knew at the time you wrote this letter, had Louis Royer ever invented any one thing by himself that amounted to a practical success in the rawhide business?

Ans. He has not.

Q. 359. Had he made any invention, so far as you then knew, or any improvement, except as he assisted you in inventing the machine which was patented to you both?

Ans. He has not.

Q. 360. I will read again to you the portion of the deposition made by you in the automatic-reverser case, which was read
85 yesterday. (Extract beginning, "While I was so using the machine and reversing it by hand," and closing, "For these reasons it did not for a long time seem to me to be practicable to attach to the machine an automatic reversing apparatus," read.) Now, while you were making these efforts as detailed by you in this deposition and reversing the machine by hand, state whether or not you made any changes in the machine itself.

Ans. I made none.

Q. 361. In what did you make any changes so that you overcame those difficulties mentioned?

Ans. I made changes in the method of preparing the hides before they were treated and the method of removing the hair first, and then the next great change was the introduction of tar—wood tar mixed with tallow.

Q. 362. How was that introduced?

Ans. The tallow and the tar were melted together, and I put some rosin in in case the tar was very strong, which some tar is. There is a difference in tar, and that stuff was put onto the hide after it had been in once, taken out and smoothen, and then the hide had the mixture put on it with a brush on both sides, and then the hides would go in again and run in the machine with the stuffing.

Q. 363. How was it about the moistening of the hides? Were there any changes made in that respect?

Ans. The moistening of the hides was the most important part, to get the hides in proper temper, so they were not too damp, because then it would not work. There would be no effect as to the hides, and they should not be too dry, because then they were too rigid and too unyielding. There is just a nice point between those two extremes in which it will work. It is something that is to be learned by experience, judgment.

86 Counsel for plaintiffs offered to put in, from the deposition just before quoted from, the paragraphs beginning, "To show

the difficulties that I met with and had to overcome," and closing, "I knew it was good and admirable for immediate use."

Mr. THURSTON: The point to which I directed the witness's attention yesterday in the passage which I read was in this connection: He had been examined in a deposition in a suit relative to what is called in some instances a combined machine, but which I call, and more correctly, I think, the automatic reverser. In his effort to sustain that patent, in the deposition he had occasion to refer to the machine which is here in controversy, and used the language concerning the inoperativeness of that machine, which I read. My object was apparent. The passage to which attention is now drawn relates wholly, as I understand, to the automatic reversing machine. It has interwoven in it statements concerning the other machine, but it relates to the difficulties that existed in the automatic machine.

CARPENTER, J.: It seems to me it may be shown that this explanation, so far as it has any bearing, was made in connection with that deposition, just the same as now—that is to say, to contradict the inference which might be drawn that this machine was inoperative. The explanation provides for the exigencies of this case. For that purpose only, not for the purpose of making it appear to the jury that the difficulties which arose were difficulties only in the preparation of the material, but simply for making it appear to the jury that at the time he made the deposition, as well as now, those were the causes to which he ascribed the failure in the mode of operation.

87 Q. 364. I will ask you, Mr. Royer, if this is another portion of the same deposition made by you from which the extract was taken yesterday:

"To show the difficulties that I met with and had to overcome I will here state that I worked incessantly and constantly from the year 1867 forward to the year 1871 in trying to make an article of rawhide that would retain its natural strength and which could be used as an article of commerce for lacing and belting and ropes and similar articles. To accomplish this result I had to discover some mechanical means by which all parts of every hide could be subjected to an equal and uniform amount of mechanical action, which mechanical action must be very powerful and long continued so that no hard spots would be left in the hide. One of the great troubles was to avoid having hard spots left in the hide in spite of the mechanical treatment. There is a great difference in the thickness of the different parts of all hides; some parts of the hide are three times as thick as other parts of the same hide. This was one cause of the great trouble I had in discovering whether or not there was a degree of moisture to which the hides could be reduced at which they could be successfully treated in the combined machine. It took much more soaking to moisten the thick parts of the hide than it did the thin parts. I finally learned how to moisten the entire hide uniformly by peculiar ways of folding it while moistened, hanging it so that some parts of the hide would

be longer in water than other parts, etc. I was all the while doing all this work in the dark, not knowing what the ultimate result would be. Besides the difference in the thickness of the different parts of the same hide there is also a great difference in the texture of the different parts of the hide. Besides all of this there are no two hides that are alike as to thickness and texture. I many times worked hides in the machine, while trying my best with the lights then before me, and the hide would come out of the machine overheated and thereby injured by the mechanical action in some places, while there would yet be raw hard spots in other places in the same hide.

I also had to discover some means by which the hides could not only be preserved indefinitely in the soft and pliable condition to which the mechanical action had reduced them, as they would always naturally return to a hard condition if they were merely made soft by mechanical action and then laid away as merchandise, but I also had to discover and apply means that would preserve the hides after being softened by mechanical operations against moulding and the effects of damp atmospheres, and also protect them against the attacks of rats, mice, and vermin. I had not obtained all of these results until the year 1871. It was with me a constant series of struggles, experiments, and efforts to overcome obstacles during all of those years.

Even after I had made a finished article of fulled rawhide in 1871 and had gotten my machines and processes so that they worked regularly and smoothly, I still did not know whether the fulled rawhide that I made would withstand the effects of time and the different conditions to which it would be subjected when it would be dealt with as an article of commerce or not. I knew it was good and admirable for immediate use"

88 Is that a part of the same deposition made by you from which an extract was put in evidence yesterday?

Ans. I think that is a part of it; that is a part of it.

Q. 365. A part of the same deposition?

Ans. Yes, sir.

Mr. WHEATON: I suppose that will be admitted?

Mr. THURSTON: I have said all I care to say about it.

CARPENTER, J.: I do not suppose you deny the fact?

Mr. THURSTON: I do not deny the fact.

Q. 366. In practical operations with your machines, state at what particular time the weight I is put down upon the top of the coil of hides in the machine—that is, is the weight put down before the hides are run in or afterwards?

(Objected to as immaterial.)

Ans. The weight is put down after they are run in.

Q. 367. How long after the hides are first run into the machine is it that you put the weight down?

Ans. When the hides are run into the machine the person that tends the machine sets the automatic motion going; puts that in

such a state then that it will go backward and forward; that is the second step after the hides are in, and then, whatever the machine does, he puts the weight down.

Q. 368. How much running, if any, does the machine do after the hides are in it before the weight is put down on the top of the coil of hides as you commonly use it?

Ans. Well, about once or twice, as fast as the men can get around; I am not exact about that; that is the practical working of it.

Q. 369. Is there any utility in having the machine run with the hides in it once or twice or more before the weight is put down?

Ans. The hides are stiff in certain conditions and heavy, and it is desirable to make it go round once or twice to limber it
89 up a little, and then the weight comes down.

Q. 370. As your language is in some respects a little peculiar in places, I will ask you what country you are a native of.

Ans. I am a German by birth.

Q. 371. What was your native tongue?

Ans. German.

Recross-examination.

(By Mr. THURSTON:)

X Q. 372. In your testimony given this morning you stated to the jury, in endeavoring to explain the letter to Schultz, that Schultz was an infringer and that this letter had passed, you supposed, from Schultz to the defendant, who was also an infringer. Do you now know as a fact that the machine of Schultz, which is now operating, is not an infringement; that within a month you have had a suit against him on this same patent, and that Judge Treat, on the presentation of the case on your patent, ordered the jury to return a verdict for the defendant?

(Objected to. Admitted.)

X Q. 373. I will ask you again, withdrawing that question, were you present within the last four weeks at the trial of the case against Schultz for an infringement on this same patent?

Ans. I was.

X Q. 374. Are you familiar with the Schultz machine?

Ans. I am.

X Q. 375. Is this a correct drawing of the Schultz machine as you understand it or does it represent the Schultz machine made under the Schultz patent?

(Drawing shown witness.)

Ans. As far as my momentary examination permits I say it is.

90 X Q. 376. You can examine it at your leisure and if it is not you can let me know if you desire to do so. Now, on the submission of your opening testimony in the case before Judge Treat, sitting as circuit judge, did he not order a verdict for the defendant on the ground that there was no infringement of that patent?

Ans. I am sorry to state Judge Treat was too drunk to know the testimony.

X Q. 377. Judge Treat was too drunk to know the testimony? You are speaking of Judge Samuel Treat, I believe, the oldest district judge in the United States for the district of Missouri. That is your answer to my question, is it?

Ans. It is.

(By Mr. WHEATON:)

X Q. 378. Did your counsel promptly file a bill of exceptions to the decision of Judge Treat?

Ans. They did.

X Q. 379. Was that for the purpose of appealing from his decision?

Ans. For the purpose of appealing from his decision.

X Q. 380. Was there also a motion made for a new trial, which is now pending?

Ans. A motion was made for a new trial, now pending.

X Q. 381. State whether or not you still believe the Schultz machine to be a direct infringement of your patent.

Ans. I know so, that it is an infringement.

91 *Testimony of Hadley P. Fairfield.*

(By Mr. LIVERMORE:)

Q. 1. What is your full name?

Ans. Hadley Proctor Fairfield.

Q. 2. Where do you live?

Ans. I live at West Medford.

Q. 3. What is your occupation?

Ans. Draughtsman and mechanical engineer.

Q. 4. State what your experience in mechanics has been during your lifetime.

Ans. From a child I was brought up by my uncle, who was also a mechanical engineer, a practical millwright, and during the winter season made a variety of things, such as are called for in *in* every country town. For instance, he made carriages, sometimes, and he made repairs on anything of a mechanical kind that came to hand. I learned my trade of him. I was educated in the meantime in the ordinary branches of English and in certain of the higher branches that pertain to the business, such a- algebra, geometry, lineal and analytical.

Q. 5. State your mechanical experience.

Ans. I worked with him, as I say, until I was twenty. I then went to Worcester to make patterns for a turbine water-wheel; I was there something like a year, less than a year. I then went to the Lowell machine shop, where I was a pattern-maker for something like five years. Then I went to the Lowell railroad, first as a pattern-maker and then as their draughtsman; Zera Colburn, since engineer in London, left and I took his place as draughtsman. I

continued on in that occupation until I saw the need of more knowledge as a machinist. I was continually designing things that I could not get readily made by the machinists; then I learned the machinist trade as such. I worked at that in one way
92 and another in various places; for Loring over here; for Charles Staples, in Portland, putting the engines into the Dirigo steamer, having charge of that work. Then fifteen years ago, or about that, I was employed by the McKay Company, so called; it was then the McKay Sewing Machine Association. Since then, the original patent having expired, I have worked for the living branches of it, the McKay Lasting Machine Association, the McKay and Bigelow Heeling Machine Association, and the McKay Metallic Fastening Company or Association.

Q. 6. What has been your occupation in the employ of these McKay associations that you have spoken of?

Ans. Until three or four years ago, making the drawings, designs of machines, and having the machines made at the company's shop, in Lawrence.

Q. 7. Have you read and do you understand the specification and drawings of the patent to Herman Royer and Louis Royer, dated May 12, 1868, which is in suit in this case and which is before you?

Ans. I have read it, and I believe I understand it.

Q. 8. Is that specification and are these drawings sufficient or not sufficient for a person skilled in making machines and interpreting drawings to make a practical machine from them?

Ans. They are. I should have no difficulty in reproducing the machine from the patent.

Q. 9. Examine this model, Exhibit 2, and state whether or not that fairly represents the machine shown in the drawings and described in the specification of that patent.

Ans. With the exception of the device for reversing it, I should say it was an exact reproduction of the patent. It may vary in some particulars.

Q. 10. The device for reversing it is what, as shown in the patent?

93 Ans. A bevelled gear on the bottom of the shaft and two bevelled gears that are engaged with it, alternately engaging different sides of it.

Q. 11. State whether for the purpose of operating that model the crank underneath is the equivalent for reversing that machine of the gears underneath.

Ans. It will do just the same thing.

Q. 12. Attention has been drawn in the cross-examination of Mr. Royer to the fact that two set-screws are shown in the drawings of the patent and three set-screws are mentioned in the first claim of the patent, and that there is one set-screw only in the model. Will you state whether you regard that as an essential difference between the model and the patent?

Ans. There are shown in the drawing two set-screws, there are described in the specification four set-screws, there are claimed

three. I should consider that it is not an important point at all, providing one, two, or three, less or more, set-screws were to hold the hide and were required to hold the hide; that we are not bound at all to the number.

Q. 13. Attention has been called in the examination of Mr. Royer to the fact that the drawing of the patent shows two slots in the side of the weight marked I, and that there are more slots in the weight in the model. I ask whether that is an essential difference.

Ans. I should consider not.

Q. 14. What, if you were constructing a machine of that kind from the patent, would regulate the number of slots that you should put into the weight?

Ans. The demand, the circumstances. I should put as many as I wished.

Q. 15. What circumstances would govern?

Ans. Well, if I were to put a hide in butt-end to, that had been soaked in the water until it was somewhat limber, I should consider that I had to hold the hide in more than one place.

94 Q. 16. I am speaking now of the slots in the edge of the weight, not of the slot in the shaft. Your last answer applied to the slot in the shaft, I infer from your language; is that so or not?

Ans. It did.

Q. 17. Now, I speak about the slots in the side of the weight, the grooves—I used the wrong phrase and misled you—the grooves in the side of the weight. What would regulate the number of grooves in the side of the weight in the construction of the machine?

Ans. As far as I can see, there ought to be two opposite or nearly opposite each other to balance it—that is, to keep it from an undue strain on the shaft, to bend the shaft. Then, there being two, it would not matter whether there were two or more or only two. Still it would do it, I judge, with one. The simple fact is something to hold it from turning around; that is all as I conceive of it.

Q. 18. Attention has been called to the fact that the upper set-screw in the shaft shown in the drawing is so close to the top of the shaft that the weight could only be pressed down to a limited extent before it came in contact with the set-screw. Is anything contained in the patent which would lead you to suppose that it was essential to put that set-screw in that particular place?

Ans. There is nothing. I should simply tap a new hole lower down if need be.

Q. 19. Will you look at this model, Exhibit 3, which is said to be a model of the machines operated by the defendants in this case, and state how that resembles or differs from the machine described in the patent in suit in the essential particulars?

Ans. I should say as far as that model goes, Exhibit 2, it 95 does just what the other does, and in the same way. It differs in the adjustability of what are called pins or rolls.

It differs in the form of the outside of those; the inside is round. My eyes deceive me; it is not quite round; the corners, as well as I can see, are rounded a little. They are adjustable in and out. These (Exhibit 2) are fixed. The hide is clamped to the revolving shaft by what I should consider an interchangeable device with the other; it is simply a binding screw. In this case a washer, nut, or binding screw holds the leather; in the other case the pressure of the end of the screw against the leather holds it; in both cases the leather is clamped against the side of a groove or slot. I should consider them known equivalents for holding the leather to the shaft.

There is the opportunity to wind in either direction, just as that has it. I find instead of a single disc or ring—"weight" it is called in the patent—bearing on the edge of the hide, that here are two. They are adjusted by a screw. Between the hubs on the screw or the nuts of the screw and the friction heads or discs or presses there is a spring which gives a yielding pressure on the edges of the hide; that (Exhibit 2) gives a yielding pressure on the ends of the hide also. The patent speaks of this being pressed down. It may be pressed down by a lever, by hand power, or by lever and weights or by another weight put on an additional weight. It is simply a yielding pressure. This is simply a yielding pressure. So far I see that they are alike, and I have stated the differences.

Q. 20. I will now refer you to the elements of the patented machine specifically mentioned in the first claim and ask you to compare them with the same elements found in the model, Exhibit 3. The patent speaks of "a vertical shaft, B;" state whether or
96 not the shaft which is horizontal in Exhibit 3, the model of the defendants' machine, is the equivalent of the vertical shaft in the patented machine.

Ans. I should call it so.

Q. 21. Would there be any difference in the operation of them for the purpose of winding and unwinding hides, as described in the patent, whether they were vertical or horizontal?

Ans. None whatever that I can see.

Q. 22. In the patent there is a slot shown a considerable part of the length of the vertical shaft. In the model there are several grooves. I understand you have already said you consider the slot and the washer and screw in the defendants' device an equivalent of the slot and the set-screw in the patented device?

Ans. I should say so.

Q. 23. That, you say, is the fact. You have already said, as I understand you, that the shaft in each machine has the same forward and backward motion and would operate the same. Now we come to the second claim. The first element which is mentioned specifically is "the pins or rollers C C C," those upright pins in the model, Exhibit 2. You have stated, I believe, that the bars in Exhibit 3 are, in your opinion, the equivalent of the pins C C C. Is that so?

Ans. Fully.

Q. 24. In the patent it is said that the pins are set in the rings

D and D', mentioned in the second claim. Do you find these rings or the equivalent of them in the model, Exhibit 3, or not?

Ans. It would be the same.

Q. 25. The grooved weight I, mentioned in the second claim, you have said has its equivalent in these grooved heads in the model, Exhibit 3. Is that so?

Ans. Yes, sir.

97 Q. 26. Do you recall any devices that were within your knowledge prior to the date of this patent for fastening articles to a shaft or to a solid body which were like this device in the model, Exhibit 3, consisting of the slot, the screw, and what you have called the washer or the clamp?

Ans. There are several devices that I have known for many years much like that. Between the years 1857 and 1864 there was a mop head that was almost or quite identical; I should call it quite. There was the mop handle; across it there was a bar; this bar was affixed to the end of it; upon this part of the mop handle was a screw-thread; there was another bar loose, sliding up and down over the thread, and a nut behind it to screw the two together. The object was to hold cloths in it as they were rubbed back and forth on the floor. That is one instance. In lathes and planers, such as have been used in machine shops for many years, the tool is held, in one case, as I have seen for at least twenty-five years, by a screw, the tool being put into a slot and the screw screwed down upon it. That would be just like the way that it is held in there (Exhibit 2). Then another way to hold it is to have a screw through a bar and bolt that bar down on top of the tool. That is exactly what is used there in Exhibit 3.

Then there is a well-known curtain roll. The curtain is held by a piece of wood that forces the cloth down into a groove made lengthwise with the roll, just as Exhibit 3, except that it goes the whole length. In Exhibit 3 there are more of them and they are shorter. The thing is materially the same. In the curtain fixture there was not used a screw, but there were used tacks to tack it down. It is the Putnam curtain roll.

98 Q. 27. Look at this curtain roll and state whether or not that is what you refer to.

Ans. That is precisely the same thing.

Q. 28. Is the fastening device in there with the tacks as you have described it?

Ans. It is with the tacks here.

Q. 29. Is there anything else you think of?

Ans. I have a drawing square I have used for twenty years where the tongue is held in by a screw just the same way. The tongue is put in there and there is a screw and thread, and we bolt the two sides onto it. That I consider just the same kind of thing.

Cross-examination.

(By Mr. THURSTON:)

X Q. 30. In giving your experience as a mechanic, skilled in industrial pursuits, I did not observe that you made any reference to

any experience as a tanner or currier. Have you had any acquaintance with that branch of business?

Ans. Slight.

X Q. 31. Carry it on to any extent?

Ans. I went when a boy, during the time I was at home, and worked some two months, I think, in a tannery, with the intention of learning the trade, but I did not learn it.

X Q. 32. Do you remember any of the old machines for treating leather, commonly known as fulling machines, used in the glove manufacture? Are you familiar with those machines for softening the hides; breaking them down?

Ans. I know the fulling machine that was used in the tannery, and no other. That was precisely such a fulling machine
99 as used to be used in cloth fulling, the two things going this way (illustrating) and rolling the cloth over and punching it.

X Q. 33. The object of this fulling machine was to soften and to break down the hides, was it not?

Ans. I have no doubt.

X Q. 34. And the operation was, as I understand you to say, analogous to the same operation in the fulling of cloth?

Ans. Yes, sir.

X Q. 35. Your experience enables you to say that that class of machinery is very old, does it not?

Ans. I have known it since I was eighteen years old.

X Q. 36. In describing the plaintiffs' and the defendants' machines you were referring to the weight, Mr. Fairfield, and regarding it, as I understood you, as an instance of the mechanical embodiment of a sort of yielding pressure?

Ans. Yes, sir.

X Q. 37. That is, the weight would give way when the material in the crib had become so condensed as to make a resistance; that is what you mean to say, I suppose?

Ans. Yes, sir.

X Q. 38. And I understood you to say also that in the defendants' machine you find that these pressure plates were backed by springs and that they were instances of yielding pressure?

Ans. Yes, sir.

X Q. 39. And that would embody the same idea as to yielding pressure in the Royer machine. I was correct, I suppose, in my understanding?

Ans. To a certain extent. I would say that the exact parallelism I get between the two things would be rather from "when the weight is pressed downward"—that is, I take it from that that there was an additional pressure. I deem—or rather I should, were I developing the machine, feel at liberty to put that pressure
100 on with my hand. I know that that pressure is a spring pressure.

X Q. 40. You do not find, of course, any reference in the patent to the employment of the arm or a lever manipulated by the arm of the operator?

Ans. Not at all.

X Q. 41. But I understand you to say it is perfectly competent to make that addition to the machine if you wish to develop it into a practical operating contrivance. I am right in my understanding, am I not?

Ans. You are.

X Q. 42. Do you attach importance, Mr. Fairfield, to the circumstance that the pressure is a yielding pressure; that this pressure on the hides, while they are in the crib, is a yielding pressure—that is, capable of yielding to the resistance which the compacted hides furnish in the crib?

Ans. If I were designing a machine with my present knowledge I should in some way make it yielding, because I know that the edges of hides, if they are put in, will be irregular.

X Q. 43. Would you suppose that if the springs were taken out of this model and if these defendants did make a machine without a spring pressure, but solidly, as by the action of a screw, that that would take it out of infringement?

Ans. I do not think it would.

X Q. 44. You think, then, that this question of yielding pressure is not important?

Ans. As a practical question in designing a machine I should consider it important in developing the invention into a practical machine. From my experience I should certainly make it yielding, but I do not know—I can conceive of making it as you say and still having it do all that is required.

101 X Q. 45. Now there are certain formal differences I wish to direct your attention to to see if there is any disagreement. In the defendants' machine you observe that the pressure is applied to the hides in the crib in directions opposite to each other and having a tendency to press the hides towards a common centre, do you?

Ans. I do.

X Q. 46. In the Royer machine you do not find that particular construction, do you?

Ans. I do not.

X Q. 47. In the defendants' machine you find that the bars which are concentric with the central shaft have a capacity to move radially outward, do you not?

Ans. I do.

X Q. 48. And the effect of that construction, when the crib was filled with hides, would be what?

Ans. If I found that the coil of hides was too large for the setting or adjustment of the machine, that they bore too hard, I should slack up the set-screws and let them out a little. If I found that the size of the cage was too large for my coil I should set them up until I got just such a resistance as I wanted.

X Q. 49. Do you not also understand that there is an advantage, in the event that the crib is filled and crowded with hides, to have the bars yield radially outward to ease the pressure that otherwise would come upon the hides in the crib?

Ans. I should.

X Q. 50. Now, in the plaintiffs' machine you do not find that there is any capacity for radial expansion of the so-called bars or rollers, do you?

Ans. I do not.

X Q. 51. Did you observe in the patent that these were called bars or rollers?

Ans. Pins or rollers.

102 X Q. 52. You understand that they may be, or some of them may be, rollers as well as bars, do you not?

Ans. I do.

X Q. 53. Would it alter the operation if they were made rollers instead of fixed bars?

Ans. I should judge that there would be less resistance to oblige the hide to wind upon the shaft with a roller than with a fixed round bar.

Testimony of Joseph P. Livermore.

(By Mr. LIVERMORE:)

Q. 1. What is your name?

Ans. Joseph Perkins Livermore.

Q. 2. What is your business?

Ans. I am a solicitor of patents and mechanical expert.

Q. 3. What has been your training?

Ans. I had a theoretical training in mechanics—that is, I went through the Lawrence scientific school of Harvard college as a student of engineering, but I never practiced engineering. I have been engaged for about seven years as a solicitor of patents, and during that time I have had to examine all kinds of machinery, patented inventions, to compare machines to see whether they had the same substantial construction and mode of operation and whether they had the same inventions embodied in them.

Q. 4. Were you in the Patent Office awhile?

Ans. I was there for a short time.

Q. 5. As an assistant to one of the examiners?

Ans. I was.

Q. 6. Are you a draughtsman?

Ans. I am.

103 Q. 7. Do you understand the interpretation of drawings of machines?

Ans. I do.

Q. 8. Have you read and do you understand the patent which is here in suit to Herman Royer and Louis Royer, dated May 12th, 1868?

Ans. I have read it, and I believe that I fully understand the nature of the machine.

Q. 9. State whether the specification and drawings are sufficient, in your opinion, to enable a person skilled in the construction of machines of that sort to construct a working machine.

Ans. In my judgment it is sufficient for any mechanic, even if

he were not familiar with this particular class of machinery, but simply with machinery in general, to construct a machine that would operate properly.

Q. 10. Have you examined the models, Exhibit 2 and Exhibit 3, in this case, and do you understand their construction?

Ans. I have, and I do understand them.

Q. 11. Please state whether the model, Exhibit 2, is constructed according to the specification and drawings of this patent in the essential particulars.

Ans. I consider that is precisely the same machine as shown and described in the patent, has all the parts shown and described, and is capable of operation in the way mentioned in the patent.

Q. 12. Attention has been drawn to the fact that the gears shown underneath the table in the patent drawings are not present in the model, Exhibit 2. Will you please state whether that crank, for the purpose of operating that model, is the equivalent of such gears for moving the shaft in both directions?

Ans. It is. I should judge that the gears were left out in
104 the model merely because they were a perfectly common means for turning a shaft, and that it was simply a matter of simplicity to let it be turned by hand in the model.

Q. 13. In the patent drawings there are but two grooves shown in the side of the weight I. Will you please state whether a mechanic, in constructing a machine from that drawing, would be confined to two grooves in that situation or not?

Ans. I do not consider that he would. The description says that the weight has grooves in it "to prevent its turning," and that, as I understand, merely means enough grooves to keep it from turning with the hide that is bearing against it. There might be two or more, or even one would be sufficient.

Q. 14. It has been said that there are two set-screws shown in the drawing, four mentioned in the specification, and three mentioned in one of the claims. I refer to the screws in the central shaft. State whether or not one interpreting the patent for the construction of a machine would be confined to any particular number of set-screws.

Ans. He certainly would not. He would merely put in as many as might be required. If a machine were intended to work wholly on large hides, so that there were only two or three hides, three or four hides, worked at once, he would have enough screws to hold those.

Q. 15. Would it require invention in one, looking at this patent, to put more or less grooves in the weight or more or less set-screws in the shaft?

Ans. Certainly not; it is merely a mechanical change.

Q. 16. One of the set-screws is shown in the drawings as near the top of the central shaft. Is there anything in the speci-
105 fication which confines one, in constructing the machine, to placing the set-screw in that place?

Ans. No. It merely states that the set-screws are to hold the hide in that groove and they would naturally be placed wherever found convenient.

Q. 17. Look now at the model, Exhibit 3, which represents the defendants' machines, and compare it with the patent, and state how it resembles or differs from the machine described there.

Ans. It is, in my opinion, substantially the same machine. It has the same parts—that is, a shaft with clamps to fasten the ends of the hide to it, and capable of rotation in opposite directions, to first wind up the hide and then unwind it, or rather to wind it on in the opposite direction, unwinding from the outside of the coil, so as to make a fold follow through the length of the hide. It has the pins or rollers that hold the outward part of the coil, so that when the shaft is reversed, after the hide has been wound on it, it unwinds from the inside of the coil and winds up again, instead of winding right off the coil, as it does when you draw this out this way, when it is drawn out from the end of the hide, and it also has means for pressing on the ends of the hides when they are wound on the shaft, which, as I understand it, is to corrugate or roughen the surface of the leather to give it a pebbly appearance, although that is not stated in the patent, I believe. Yes, it says it gives it a "rough, corrugated, seamy appearance." That is apparently what the end pressure is for. The parts that are pressed endways on the hide are movable and are restrained from turning with the hide like the grooved weight in the patent. The resemblances are, therefore, that it has the shaft, which is slotted and provided with set-screws for fastening the hides to it, and is capable of
106 turning first in one and then in the other direction. It also has the cage of pins or rollers that receive the roll of hide, and a sliding follower that presses on the sides of the hide—that is, on the ends of the coil of hides.

It differs from the machine described in the patent in being placed in a horizontal position instead of a vertical position, which is, in my judgment, no difference at all, unless the weight of the column of hides is enough to produce an effect in the operation, and I do not see how it can be. There is also a slight difference in the kind of clamp used to fasten the hides to the shaft. The slot in Exhibit 3 does not go wholly through the shaft, and there is a washer or enlarged head placed under the screw that gives more of a bearing, pinches a larger surface of the leather. This would be rather less liable to tear out; but I should judge that with such material as rawhide the screw would hold with sufficient strength to prevent tearing out. At any rate both such forms of clamps have been used, I believe, within my own knowledge, prior to 1870, and I have seen patented publications that show they were used prior to 1865—that is, a curtain, which is a flexible piece of material, to be wound around a shaft, has been fastened to it simply by tacking through, in which case there is some liability of tearing off the heads of the tacks. In other cases the shaft has been grooved and a strip of wood forced in over the curtain and into the groove, holding it in the groove. This is less likely to tear than when tacks alone are used. The difference seems to me to be the same as between these two forms of clamps shown.

The heads or followers, as they may be called, that bear
107 against the ends of the coil of the hide are two in number in Exhibit 3, and only one in the patent. But there is nothing that would absolutely define the position of the coil on the shaft lengthwise, and it makes no difference, so far as squeezing the two ends of the coil together is concerned, whether you squeeze wholly on one end against a stationary platform at the other or whether you squeeze both ends together.

There are springs introduced between the two movable heads or followers in Exhibit 3 and the press that forces them up against the coil of the hides so that the pressure exerted is somewhat yielding, the same as it would be if applied by a weight, although I do not understand that the weight shown in the patent exerts its pressure wholly by gravitation on the weight itself. It really is a heavy plate that is pressed against by some external force, as I should understand it. The two followers in Exhibit 3 are grooved and engage the pins of the cage to prevent their rotation, so that the ends of the coil rub over these just as they do over the surface of the weight in the patent. I believe those are the main differences.

There is one other difference and that is that the pins in Exhibit 3 have a chance to move outward, and they are forced in against the coil by springs. The outward movement is limited by a rigid stop, though, so they cannot expand but so far, and after they have come up against the stops they are the same as if they were fixed in the rings just as they are in the patent or as they are in the model. It does not state in the patent that they are fixed. The inner surface of the pins that the coil rubs over when it begins to turn in the cage is rounded so it has the same effect as the
108 surface of the pins shown in the patent.

Q. 18. Have you any patents here of prior date showing this clamping device for fastening a fabric onto a shaft?

Ans. I have some.

Q. 19. Hold up the pictures, and, without referring to the specification in detail, describe them, giving the dates of them.

Q. 20. Here is the Patent Office copy of a drawing of a patent in 1855, in which the roller has a square groove, and a piece is fastened on by screws to hold the end of the curtain between the main body of the roller and a little piece that is put in the groove. That is the same way that it is in this patent—that is, there is a groove in the roller and a piece screwed down in over the part to be held. That was in 1855. Then in 1869 there is just a square groove in the roller and a strip of wood pressed into the groove to hold the curtain. This strip is not in this case held by a screw, but by a ring which goes around over the end of it. Here, in 1870—that is, after the date of the patent—there is a sand-paper roll for sand-papering wood, where the layers of sand-paper are fastened onto the roll by grooves in the roll and the strip forced down over the end of the piece of sand-paper into the groove and held there by a screw or two screws. That is just the same as this device. Here are one or two others after the date of the patent that tend to show that there are dozens of ways that you can fasten a strip to a round

roller, all amounting to the same thing, so far as the fastening is concerned. In this one the roller is split right in two, and the two parts fastened together on the end of the curtain. That one is in 1871, and in 1872 is about the same thing, except that the two parts are split on a curved or wavy surface, so that they take the curtain in between them with a little stronger grip than if they were merely flat surfaces.

In reading over the Patent Office report of 1851, patent No. 8041, to S. S. Putnam, I find it says: "I do not claim generally confining one end of a curtain to the roller on which it is wound and unwound by means of a groove in said roller and a confining strip." What he does claim is holding the strip in by a collar. That simply shows that a groove and a strip was too common a thing to be claimed even in 1851.

Q. 21. Will you state what you understand the operation on the rawhide to be, as explained in the specification of this patent in suit?

Ans. The operation is to soften the hide by gradually—it amounts to the same, perhaps, as working the thing back and forth. You know if you should take a piece of paper that is full of sizing or take a piece of starched linen—that is, something in the condition of rawhide—there is a fibre; it is soft, but there is a gelatinous material—a kind of glue—in it, which keeps it stiff. Now, you can either get that glue out and make the cloth soft by soaking it out, which is similar to the process of tanning hides, getting them soft by soaking, or getting out the gelatinous matter by chemical action, or you can soften the piece of linen by rubbing it up in your hand, working it back and forth; leather can be softened in that way, but if you attempt to do it by working it back and forth it will probably take about a year to soften a hide, I should think.

Q. 22. By hand?

Ans. By hand I mean working it back and forth by hand. You see you can only work one little place at a time, and then, after you get that soft, you have got to go along to the next place and get that soft, and so on. Now, this machine, by unwinding from the outside of the roll, unwinds and winds on again in that way (illustrating with model), and that carries a fold or bend right along from one end of the hide to the other, and then, when it is wound the other way, it carries it back again, and in that way every part of the hide is acted upon in each winding and unwinding of the shaft. The end pressure, as I understand, squeezes up the hide in this way, and gives it a different sort of a surface; apparently gives a different texture to the leather, though I don't understand myself why it should do so.

Q. 23. Will you take the model, Exhibit No. 2, and take the weight out and wind up the leather and unwind it down before the jury, so that they can see that fold going back and forth?

Ans. (Operation shown to the jury.)

Cross-examination.

(By Mr. THURSTON:)

X Q. 24. Have you any acquaintance with the art of dressing hides in any relation whatsoever?

Ans. Nothing special. I have no personal acquaintance with it at all.

X Q. 25. You never worked in a tannery?

Ans. Never.

X Q. 26. Never broke bark in a bark mill?

Ans. No.

X Q. 27. Have had nothing to do with dressing or fulling leather in any form or shape practically?

Ans. I may say that I have not worked at any trade of any kind at all.

X Q. 28. You are following the profession of a solicitor of patents and mechanical expert?

Ans. Yes, sir.

111 *Testimony of George P. McMahon.*

(By Mr. WHEATON:)

Q. 1. Please state your name, age, residence, and occupation.

Ans. My name is George P. McMahon; Pawtucket, R. I.; my occupation is that of currying and finishing leather and work connected with the manufacture of lace leather.

Q. 2. How long have you been connected with the manufacture of lace leather?

Ans. For a number of years since I first started; about 1871 or 1872.

Q. 3. Where were you when you first started in that occupation?

Ans. William Coupe & Co., South Attleboro'.

Q. 4. The defendants in this case?

Ans. Yes, sir.

Q. 5. What kind of lace leather were they manufacturing in 1871 and 1872?

Ans. Partly tanned lace leather, known as Page's patent at that time.

Q. 6. What other kinds of lace leather, if any, did they manufacture from 1871 or 1872 up to 1878?

Ans. They manufactured patented lace and rawhide leather—lace leather—that is, in those two lines.

Q. 7. When did they commence on the rawhide lace leather?

Ans. My first recollection was late in 1876 or early in 1877.

Q. 8. When they first commenced the rawhide lace leather, what kind of machinery, if any, did they use?

Ans. I see them use such as they used to beat the hides in, known as a fulling mill, somewhat different from what others have. I have known them to put it in a stuffing wheel operated by hot air.

Q. 9. How long did they continue to use the stuffing wheel for manufacturing rawhide lacing?

112 Ans. Not very long. I couldn't state just how long, but I know it wasn't very long.

Q. 10. Why did they not continue longer?

Ans. Well, it was a failure.

Q. 11. In what respect was it a failure?

Ans. In every respect.

Q. 12. Describe that stuffing wheel in which they undertook to manufacture rawhide lace leather.

Ans. The stuffing wheel was a round wheel somewheres between eight and twelve feet in diameter and perhaps somewhere between three and four wide. It was turned round by a shaft.

Q. 13. In the form of a drum?

Ans. Yes; similar to that of a drum, only it was in a form that it could be turned around by machinery.

Q. 14. How was it fixed inside?

Ans. Well, I believe it had teeth when it was first started, pegs, rather, wooden pegs.

Q. 15. What shape and size were those pegs and how were they arranged?

Ans. They might have been between three and five inches, perhaps, and a foot or so apart; somewhere along there.

Q. 16. Three or four inches what?

Ans. Long.

Q. 17. Whereabouts were those fixed in the drum?

Ans. All around on the inside.

Q. 18. Were they on the sides or only on the circumference?

Ans. I don't remember whether they were on the sides or not; I couldn't state positively as to that.

Q. 19. You say that was in 1876?

Ans. Yes, sir; that was 1876 or early in 1877; during that period.

Q. 20. Describe more particularly the fulling stock which you say they used.

Ans. What they had at one time were beaters which were
113 lifted up and down, and they also had teeth, the same as were used in the pounding machine for patent lace. It is used for a similar purpose to that of the stocking mills, so called.

Q. 21. What kind of patent lace did you refer to in your last answer?

Ans. It was known at that time, at that early period, as patent lace; which I referred to first was known as Page's patent lace, which I first spoke of.

Q. 22. How was that Page's patent lace treated in manufacturing it?

Ans. You mean from the first process?

Q. 23. Just tell right through.

Ans. When it first came there it was soaked.

Q. 24. In what?

Ans. In water. It was then washed a little and the hides were split in two.

Q. 25. Which way, and how?

Ans. From the tail to the head or between the horns. They

were put into the lime vat then and limed sufficiently to get the hair off, washed in water, green-shaved, and were drenched, a drench made of hen manure or pigeon manure. They were afterwards washed in cold water, put into this liquor, known at that time and similar to Page's patent; afterwards they were taken out of that, after a *few* number of days, taken upstairs and damped with water, the dried parts of them. They were then struck out by hand and somewhat later by a machine known as the Martin jack for doing similar work. They were shaved and then hardened out doors or inside, as the weather might admit. They were then taken down again, damped in the dry spots, put in this Martin jack or stoned out by hand, as the case might be. They were buffed, damped with water again, and stuffed with tallow and neat's-foot oil. They were treated then in the drying-room until they were perfectly dry.

They were taken out then and laid in a pile till they were
114 cool, sometimes longer. They were then tallowed down generally with pure tallow; afterwards pounded in what is known as the pounding machine for that purpose. Then they were finished with a stone slicker and glass, tools for that purpose and other purposes.

Q. 26. Do you know whether this liquor that you speak of, covered by Page's patent, was a chemical solution or not?

Ans. I can't exactly tell about Page's patent. I know what we used was.

Q. 27. What was it you used in that liquid?

Ans. I don't know all the things that we used.

Q. 28. Tell what you do know about it.

Ans. I know that we used gambier, salt, alum, and acid.

Q. 29. What kind of acid?

Ans. I have known of sulphuric acid.

Q. 30. What was this Martin jack that you speak of?

Ans. Well, it was a jack that is used on other leather for polishing it, I believe. I don't know what it is used for. It is used for a good many things.

Q. 31. Give us a general idea what kind of a machine it was.

Ans. It was worked on an arm and had a stone slicker attached to it that came down on the leather just as a man would go over it with his hand, only more effective.

Q. 32. That is, it rubbed the surface of the leather?

Ans. It rubbed the surface of the leather. It is used in all leather factories and most morocco factories, or similar machines. They are constructed in various forms.

Q. 33. What kind of a machine was this pounding machine that they used?

Ans. It was a machine with teeth from two and a half to three and a half inches long, and they were an inch or two
115 apart, and on the bottom there was a plate of wood with holes bored in it larger than what those pins were, and the machine would come down in that form (illustrating) and the pins would go down in those holes, and in this wood at the bottom there

were rubber springs put on the side in between those pieces. It would come out and soften them.

Q. 34. The pins would drive a portion of the hide into those holes and soften it?

Ans. That part of it that would go into the holes. The teeth didn't go into the holes very far.

Q. 35. That was the only operation by which the hide was softened?

Ans. That was the operation by which it was softened at that time on that kind of leather.

Q. 36. At that time the hide had been tanned and treated with chemicals, had it?

Ans. Yes; it had.

Q. 37. By what other name was this pounding machine known, if any?

Ans. I could not state positively what different people might call it. We called it a pounder. The man that built it and put it in—I saw him working on it, and he called it that. He was a mechanic, and I suppose he understood about it.

Q. 38. What kind of fulling stocks did they use?

Ans. They used one with teeth in it, only a little shorter.

Q. 39. What was shorter, the teeth?

Ans. The teeth were shorter, and they were iron or steel instead of wood.

Q. 40. Did it have holes in the bottom, underneath?

Ans. No; they didn't have any holes, the ones used in the place; the fulling stocks didn't have any holes.

Q. 41. How did the teeth operate?

Ans. They operated the same as fulling stocks used for the same purpose.

116 Q. 42. It is the fulling stocks I am inquiring about now.

Ans. Yes, sir; I am talking of what we had there.

Q. 43. Do I understand you to say that the defendants undertook to treat the rawhides when they commenced in fulling stocks or not?

Ans. Yes, sir; they did.

Q. 44. Explain how they treated the rawhides in fulling stocks when they first commenced.

Ans. They dumped them in; put them in the best way they could. Whoever was at it would put them in.

Q. 45. I wish you would describe those stocks with a little more particularity, remembering that we don't know anything about them.

Ans. Let me see any picture of a fulling stocks and I will explain it. This one that Mr. Coupe has is different from any one that we used. It works similar to that and any other, only the motion is up and down. It lifts up a weight.

Q. 46. How is that different?

Ans. That has an arrangement of pins attached and drops down upon the hides.

Q. 47. What is underneath the hides?

Ans. It has that arrangement inside. All those weights with the arrangement of pins in the bottom of them come down upon the hide and the hide just resting on the flat form underneath. There is an arm comes down and the weight drops down on that leather and another arm keeps rising up: keeps doing it. There are two arms, and when one is down the other is up. In that way they turn the hide around in this iron box.

Q. 48. How long did the defendants continue to use that fulling stocks in treating rawhides?

Ans. Not very long.

117 Q. 49. Why not?

Ans. It was a complete failure.

Q. 50. In what year were they using it?

Ans. They started up late in '76 or early in '77.

Q. 51. Were they using the fulling mill, the stuffing wheel, and the fulling stocks at the same time in treating rawhides?

Ans. Yes, sir; they were.

Q. 52. To what did they next resort, if anything?

Ans. They next resorted to a machine like one of those.

Q. 53. Like that model, Exhibit 3?

Ans. This is marked "3." Is this what you refer to?

Q. 54. Yes.

Ans. It was not exactly like that model.

Q. 55. How nearly was it like it?

Ans. It was built with two cribs and the centre shaft run between two of them. They were made out of gas pipes and the inner shaft was iron.

Q. 56. How did each one of the cribs that you mention compare with the model, "Exhibit 3"?

Ans. They compared exactly like it. A shaft run through the centre and the hides were attached on here with screws, and it was operated here in the centre by two plates, one crib on one side of the plates and one on the other.

Q. 57. How many of those machines did they commence with?

Ans. They commenced with them two.

Q. 58. We are a little bit confused about the machines. I wish you would consider each crib a machine for the purposes of this examination.

Ans. Well, I do consider each crib a machine.

Q. 59. Then they had two cribs operated by one shaft?

Ans. They had two cribs operated by one shaft, but they were separate and wound the hides in each crib separate from the other.

Q. 60. How long did they continue to use cribs of that kind,

118 to your knowledge?

Ans. They have used them ever since, to my knowledge. I have seen them operating them until I left there.

Q. 61. When did you leave there?

Ans. I left there in June, 1879.

Q. 62. How many machines or cribs did they have in use at the time you left there in June, '79?

Ans. They had twelve or more. I never counted them beyond the number of twelve.

Q. 63. About how many hides would they treat on an average in each crib each day?

Ans. I could not state positively as to that; I never knew, not exactly.

Q. 64. Well, tell us as near as you can.

Ans. Well, when they first started in they didn't treat them so fast, and they were gradually gaining until I left. That is about all I can state about it.

Q. 65. Well, you can give us an idea about how many it was, can't you? You have not given us any idea yet. It might be one and it might be a thousand, from what you have said so far.

Ans. Somewhere between three and five, I should judge.

Q. 66. When was that three to five?

Ans. That was late in '78 and along in '79; any time about that period.

Q. 67. How many, as near as you can fix it, were they treating in each crib in May and June, '79?

Ans. They were treating them faster then than they had been any time previous to that.

Q. 68. Can you give any idea how much faster?

Ans. I couldn't state as for how much faster.

Q. 69. Well, do you know anything about their manufacture of these fulled dry hides or fulled leather since you left?

Ans. Nothing only what I have heard once in a while
119 mentioned. I don't know otherwise. I have not been in the shop since '79.

Q. 70. Do you know of your own knowledge anything about the defendants leasing this kind of machines to other parties?

Ans. I know it through others.

Q. 71. No, I am inquiring of your own knowledge. What others told you is not evidence.

Ans. I don't.

Cross-examination.

(By Mr. THURSTON:)

X Q. 72. While in Mr. Coupe's employ did you ever work on the rawhide machines?

Ans. Some.

X Q. 73. Your place was in the tanning and currying department, was it not?

Ans. I had no particular place.

X Q. 74. You were taken by him as a boy, were you not?

Ans. Yes, sir; I was.

X Q. 75. And you remained there until June, '79, when you went to Wetherhead & Thompson's.

Ans. I did not remain there until I went to Wetherhead & Thompson's. I left Mr. Coupe's prior to my going to Wetherhead & Thompson's. I worked for another party.

X Q. 76. Was not that June, '79?
Ans. That was not June, '79.
X Q. 77. Did you leave Coupe in '79?
Ans. I left him altogether in June, '79.
X Q. 78. Has there not been a feeling of bitter hostility on your part towards him?
Ans. There has not been.
X Q. 79. Have you not manifested it in various directions?
Ans. I have not.
X Q. 80. Haven't you endeavored to collect witnesses against him and proved your hostility to him in that way?
Ans. I have not.
120 X Q. 81. Haven't you declared that hostility?
Ans. I have not. I wish to state that I have been sent on business for Wetherhead & Thompson to see men and have brought them to the town. Others have done the same thing for them.

(By Mr. Wheaton:)

X Q. 82. In whose employ were you when you were so sent?
Ans. By Wetherhead's employ.
X Q. 83. You mean in Wetherhead's employ?
Ans. Wetherhead & Thompson.

Counsel for plaintiffs offered the evidence of Thomas A. Gallagher and proceeded to examine him in regard to the machine used by the defendant Coupe.

Counsel for defendants stated that he intended to put in a model of the machine used by the defendant Coupe, by Mr. Coupe.

Mr. Wheaton: With this understanding, your honor, I am willing to withdraw the evidence of this witness, as it does not seem to have any particular force, as the defendants are going to put in their model. We are willing to rest here, reserving the right to prove the number of hides manufactured by the defendants by the book-keeper, Mr. Burgess, who will be here in the morning.

121 *Evidence for Defendants.*

Mr Thurston: I will put in first an assignment from Louis Royer to Franz Royer, dated March 10, 1885, and the consideration that is named is $1,000 for one-half the patent and for all claims for damages and infringements theretofore committed upon the patent.

Next a conveyance from the same Franz Royer to Herman Royer, describing the same matter, including one-half of the patent and all accrued claims for infringement, and dated on the 27th of March, 1885.

Both the above are recorded in the Patent Office at Washington on the same day, July 7th.

I will also put in evidence the letter from Herman Royer to Mr. Schultz read yesterday and dated March 14, 1876.

Testimony of William Coupe.

(By Mr. THURSTON:)

Q. 1. What is your age and occupation, Mr. Coupe?

Ans. William Coupe; tanner and manufacturer of leather.

Q. 2. How long have you been engaged in the manufacture of leather?

Ans. It is thirty-four years since I first went into the profession.

Q. 3. State your experience in that manufacture, progressing, not dwelling minutely upon your experience, but sufficiently to make your competency upon the subject of dressing leather as an expert known to the jury if you are so competent.

Ans. In 1852 I went into a bark tannery. I learned the art of tanning to a certain extent. In that tan-
122 nery they used both vegetable and chemical materials for tanning. After I had been through the tannery I then went through the currying department. There I became familiar with all the details of currying ordinary shoe leather. After a year's experience in that place I left there and came up to Cambridgeport here and went into a more extensive currying establishment where they dressed a greater variety of leather. I remained there until I had, as I thought, secured all the information I could well get which was to be obtained in an establishment of that kind. Then I went up to Pawtucket, R. I., and I entered an establishment there where they dressed all kinds of what is called factory leather, lace leather, picker leather, harness, straps for looms, belt leather, and a number of other different kinds of leather. I remained there for a considerable length of time and then I went into the navy. I was in the navy a short time; then at the breaking out of the war I went into the civil war. After that I opened a small store in Pawtucket and perhaps run that for about three months, and then I established myself in 1855 or '65 in the manufacture of factory leather. I had got a very small capital, perhaps about $1,500, which was a small sum to start with in competition with all the parties I had to engage with. However, I went forward in the business notwithstanding all the opposition that I had. I manufactured various kinds of factory leather, lace leather, picker leather, harness, straps for looms, and at that time we were using what was called the Page patent. It was superior to any other kind of leather that there was in the market at that time for lace leather. It finally superseded everything else. After I had been working that process for about ten months I made
123 an improvement upon it which gave me a decided advantage over any competitor that I had in the market. I made a better product and sold it at a higher price, and the consequence was that in a term of three years we had run our business up to about $100,000 a year. I have always been sort of progressive, as you might call it, in my especial line of business. I have always wanted to be as far ahead as anybody, and I believe, as a manu-

facturer. I have the best reputation of any man in the United States to-day.

Q. 4. Does your leather sell at higher prices than any other man's?

Ans. Yes, sir.

Q. 5. Now, I ask you how many letters patent you have taken upon subjects connected with the dressing of leather or the treating of leather?

Ans. It is not just exactly fresh in my mind at the present time, but it is either eleven or thirteen.

Q. 6. When did you commence the manufacture of rawhide, the dressing and treating of rawhide?

—. In the winter of 1864 and 1865 I was in England. While there I visited Manchester, a very large manufacturing district. Just previous to my going there I went on a visit. I had been in the employ of Messrs. Fairweather & Fales, of Pawtucket, a well-known firm, not in existence now, and when they heard I was going they wanted me to solicit a little for them over there.

CARPENTER, J.: You had better remind him to answer the question and save time.

Mr. THURSTON: The question is when you commenced the manufacture of lace leather. State it as fully as you think necessary.

CARPENTER, J.: Give the date. That is all that is needed.

Ans. In 1867.

124 Q. 7. How long have you known of the employment of fulling machines for the purpose of softening hides?

Ans. Ever since I have been in the business.

Q. 8. Will you describe to the jury what two descriptions of leather are known to the market with respect to the methods employed for curing and dressing hides?

Ans. Do you mean the machine, sir?

Q. 9. No; I am referring to the chemical treatment and to the treatment by mechanical means.

Ans. For mechanical treatment at the present day the ordinary fulling machine is one that is the most in use.

Q. 10. Now, the other method of curing hides so as to make them into leather is known as a chemical process, is it not?

Ans. Yes, sir; either chemicals or vegetable tanning.

Q. 11. What is the description of leather with which vegetable and chemical agents for tanning are not used? What is it called, including glove leather and all of that description not treated with chemicals?

Ans. Leather where there is no tanning used whatever is called, substantially, rawhide.

Q. 12. What is that?

Ans. I say leather where there is no tanning used whatever is called, substantially, rawhide.

Q. 13. Now, what is glove leather?

Ans. Glove leather is rawhide softened by a mechanical process.

Q. 14. Are there preservative agents put into it?

Ans. They preserve it with oil or stuffing of some kind.

Q. 15. Now, reference has been made in the course of testimony on the other side—I mean in the questions—as to the stuffing of leather. Just explain to the jury, from your practical knowl-
125 edge, what that is.

Ans. The stuffing of leather, under ordinary circumstances, is applying a mixture composed of any kind of grease and other substance you think proper to put in, either letting it dry in naturally or working it in by some mechanical means. That would be called stuffing it.

Q. 16. What is the effect of the stuffing?

Ans. It helps to make the leather soft and pliable, and, to a certain extent, helps to preserve it.

Q. 17. How many years has that art been known?

Ans. Well, I should suppose it had been known for centuries.

Q. 17½. One of the oldest arts, I suppose?

Ans. Yes, sir.

Q. 18. What is rawhide, as dressed by you, used for?

Ans. Rawhide, as dressed by us, is an article made by a mechanical process.

Q. 19. And is used for what purpose?

Ans. It is used for lace leather principally.

Q. 20. It may be understood by the jury, but you had better explain it. What is lace leather?

Ans. Lace leather is an article of leather that is cut up into strings; that is used for sewing belts or bands that are used to transmit power in any manufacturing establishment.

Q. 21. In other words, it is a stout shoestring, is it not, used to lace the two ends of a belt together?

Ans. Well, it is wider than a shoestring: it varies in width from a quarter of an inch up to an inch, according to circumstances.

Q. 22. Is that your principal manufacture?

Ans. No, sir; we manufacture seven different kinds of leather.

Q. 22½. Harness leather, and other descriptions, I suppose?

Ans. We do not manufacture any harness leather; all our
126 leather is factory leather.

Q. 23. For factory use?

Ans. Yes, sir.

Q. 24. Now, state whether you received letters patent for the model which has been exhibited in this case.

Ans. I have, sir.

Q. 25. (Showing model.) Is that a model of the machinery which you use?

Ans. Yes, sir.

Q. 26. Now, state to the jury how many cribs you employ, because that represents only a single crib, and state the arrangement of such cribs to each of them.

Ans. We employ thirty-nine of these machines, of these cribs.

Q. 27. How are they arranged to work?

Ans. Each one of those cribs is arranged to set on an iron foundation about three feet—two and a half feet above the floor. Those legs set on that foundation or frame, and they are bolted to it,

in a circle, as it were, and they are set close enough together so that the operator can get in between each machine and operate it; they are also so arranged that you can run either six or eight cribs at once, as the case may require, or throw out any one of them that you wish and leave the others to work, all driven by one belt. What we call a machine proper consists of either four, six, or eight of these cribs. Each one of the cribs has a capacity of the machine that the complainant has put in.

Q. 27½. Do you carry on the business of tanning leather and currying it?

Ans. Yes, sir.

Q. 28. Now, when did you produce that machine, your system of machinery of this type?

Ans. I produced this machine, not in the fully completed form that it is now, some time between the years 1876 and 1878. I think, I will not be just positive, but I think it was somewhere about
127 that time. The machine was comparatively crude then to what it is now.

Q. 29. You produced progressively the machine, I understand you. Did you procure successive letters patent bearing upon the general subject?

Ans. I did secure letters patent for a machine something similar to this. The old first patent I secured only had one false head.

(Stopped by Carpenter, J.)

Q. 30. Was the first one in order the one granted to you January 22, 1878, applied for November 12, 1877? (Paper handed to witness.)

Ans. That is a draft of the first machine I made.

Q. 31. Does this exhibit the radial arrangement that you have been explaining to the jury?

Ans. It does, sir.

Q. 32. That was the first arrangement, and you preserve that same general arrangement now?

Ans. Yes, sir, with improvements.

Q. 33. Was the next one in order No. 202,414, granted April 16, 1878?

Ans. That was the next patent, sir, that I took out on this machine.

Q. 34. And the third one in the series is No. 241,308, granted May 10th, 1881?

Ans. That, sir, is a copy of the other patent I took out on the machine.

Mr. Thurston: I will put the several patents in evidence, numbered 199,415, dated January 22nd, 1878; 202,414, dated April 16, 1878; 241,308, dated May 10th, '81.

Q. 35. When did you first know or hear of Herman or Louis Royer paying any visit at your place, if you can fix the time?

Ans. I cannot fix the time exactly just now, but it was some con-

siderable length of time after I had got the first machine in operation.

128 Q. 36. You know the fact that you were operating the machine at the time when you made the acquaintance of either of those gentlemen?

Ans. Oh, yes; I had my business in full operation.

Q. 37. Whom did you see first, Louis Royer or Herman Royer?

Ans. Louis Royer.

Q. 38. About how many years ago, to the best of your recollection, did he call at your place at South Attleboro', if he did ever so call?

Ans. To the best of my memory it was some time in 1880 when Louis Royer called at my place.

Q. 39. Did you take him into the establishment?

Ans. I did, sir.

Q. 40. Did he examine your machine?

Ans. He went all round the factory.

Q. 41. Were the machines in regular operation?

Ans. Yes, sir.

Q. 42. Was he at your house on the occasion of that visit?

Ans. He took dinner with me.

Q. 43. How long did he remain?

Ans. He might have been there altogether three or four hours.

Q. 44. Did he propose any arrangement with reference to obtaining your leather? If so, state it.

Ans. Yes, sir. He said he had been associated with Schultz, of St. Louis; that Schultz had gone back on him and cheated him, and he said he had entered into another arrangement with William H. Dillingham, of Louisville, Ky.; that they had not futilled their contract, and he wanted to make some arrangements with me to send him my product over to England.

Q. 45. Was he proposing to go to England, as he stated or as you understood?

129 Ans. If I remember right, he had been to England and had come back for the reason that Dillingham wouldn't send him any goods.

Q. 46. In short, if I understand you right, without dwelling upon it longer, he wanted you to consign or send to him your lace-leather product?

Ans. That was about the drift of the arrangement that he wanted to make.

Q. 47. Was there any claim made then that there was any infringement of this patent here in suit?

Ans. No, sir; there wasn't anything said at that time about any infringement of anything. He said that his brother Herman had skinned him, and——

Q. 48. Well, he didn't make any claim of infringement? I don't care to go into their private quarrels; we have got enough of that.

Ans. No, sir.

Q. 49. That was Louis who came to see you then?

Ans. Yes, sir.

Q. 50. Did this man Herman Royer come afterwards to South Attleboro'?

Ans. Herman Royer came to my factory, I think it was, in '81; some time, perhaps, about the middle of '81.

Q. 51. Did you take him in freely?

Ans. Yes, sir; he went all over the factory.

Q. 52. In regular operation, I suppose?

Ans. Yes, sir.

Q. 53. Did he make any claim about any infringement upon his patent at that time?

Ans. No, sir.

Q. 54. How long was he there?

Ans. I couldn't say exactly how long he was there. He might have been there an hour and might have been more.

Q. 55. Did he have any special business that you recollect?

Ans. He didn't say anything about any special business to
130 me. He said he was looking around, seeing what people was doing, or something of that kind.

Q. 56. Did he examine your leather?

Ans. Yes, sir: he examined my leather, and I remember his making the remark—he says, "Coupe, you know more about rawhides than all the men I have met."

Q. 57. And he left like any other visitor that came to see you?

Ans. Before he left I showed him a number of my patents, and there was some more conversation took place, but I don't just exactly remember what it was.

Q. 58. He left like any other visitor that had called at your works?

Ans. Yes, sir; we seemed to separate very cordially.

Q. 59. Did you have any interviews with either of them until your property was attached in this suit?

Ans. No, sir.

Q. 60. Five years afterwards?

Ans. Yes, sir.

Q. 61. After this suit was commenced were you instructed by any one to build a Royer machine according to the patent that is here in suit?

Ans. After this suit was commenced I was instructed by my counsel to build a machine like the patent called for.

Q. 62. Were you told to build a working machine and test it and try it?

Ans. Yes, sir.

Q. 63. And you did do so, I understand?

Ans. I did so.

Q. 64. Did you build it according to the best information that you had or could gather under that patent?

Ans. I gave the machine—I carried the draft, a copy of the patent, to the superintendent of the Franklin foundry, in Providence, and requested him to build a machine in accordance with the draft of the patent.

Q. 65. Was it built by the Franklin foundry for you?

Ans. Yes, sir.

131 Q. 66. What did you do with it?

Ans. After it was completed I had it taken to our factory and put it into operation.

Q. 67. Have you a model of that machine which you so constructed?

Ans. Yes, sir.

Q. 68. Is this the model?

Ans. That is the model, sir.

Q. 69. I notice that here is an arrangement by which you could take out one of those bars which is not shown in the patent. What is that for?

Ans. To give a chance to put in the hide.

Q. 70. A mere matter of convenience, then?

Ans. Yes, sir.

Q. 71. What was the diameter of the working machine, about?

Ans. I think the internal diameter is 18 to 20 inches.

Q. 72. For convenience in loading the machine I understand you to say that you made one of the bars so that you could remove it and put it back; is that so?

Ans. Yes, sir.

Q. 73. Did that make any difference in the operation of the machine at all?

Ans. No, sir; not at all; it facilitates the loading of it; that is all.

Q. 74. Do I understand you correctly as saying that it gives a larger aperture to get the load into the machine and that is all?

Ans. Yes, sir.

Q. 75. Now, state to this jury how that machine operated, and if you kept any record of it you can refer to the record and explain, if there were difficulties in its operation in turning out good work, wherein the difficulties existed.

Ans. I have a record of it, and in the working of that machine I experienced just exactly the same difficulty that Mr. Royer has already set forth in reference to it.

132 Q. 76. When you speak of what he has already set forth do you refer to the printed testimony which he has given in the case, to which I directed his attention yesterday?

Ans. Yes, sir; that is what I have reference to.

Q. 77. And your experience corresponded to that statement?

Ans. Just exactly. I think if you read the memorandum that it will show it.

Q. 78. Now will you state what was the operation of that machine as coming from your own experience?

Ans. We took a proper quantity of hides, such as we thought would fill the machine—that is, after we got the machine all screwed down to the floor and belted onto the shaft and ready to operate, we got the hides ready and attached them to the shaft, one man getting hold of the hide and putting it in the slot, and after it got into the right place, as we thought, another man inserted the

socket wrench in through the bars and screwed that hide up; then the man took up another hide and put it in the same way, and so on we continued until we got four hides in there.

Q. 79. Were all those four hides, just as Mr. Royer describes, put into the same vertical slot in the shaft?

Ans. Yes, sir; they was put in one above the other.

Q. 80. And then screwed down with set-screws?

Ans. The set-screws screwed up and brought immediately in contact with them, and the friction of the set-screws held the hide in its place, and we started up the machine. When we started it up we had this weight out and the hides crowded out on the top.

Q. 81. You did not have the weight on them?

Ans. Not at this immediate time. As I remember it, we
133 did not have the weight.

Q. 82. And the hides jumped out?

Ans. The hides came out on the top, so that we took the handle of a top maul and punched them down far enough so as to get the weight on them. After we got the weight on, of course they was revolving at this time, and if I remember right the first hide broke away; the set-screw was not sufficient to hold it against the pressure there was exerted against the rawhide while it was running into the machine. It broke away; I think it was the top hide, so it left the top screw disengaged. It didn't run round more than three or four times before the weight came down. It pressed the weight by its own gravity down onto the top of the top screw. Of course it could get no further down, because that screw projected out and came in contact with the under part of the weight, and that substantially stopped the compression; we couldn't compress the hides any more.

Q. 83. That would be the necessary effect, would it not, if the head of the screw were projecting beyond the aperture in the weight?

Ans. It would be the necessary effect if the head of the screw projected beyond the surface of the shaft, for the weight fits comparatively snug, and of course it cannot screw down any further.

Q. 84. Now, then, a screw could have been made the head of which would not have projected, I suppose, although it is not shown in the patent. What would be the effect then?

Ans. You might make a screw that would have been flush with the surface of the shaft and hold the hides, but it would be difficult to get that weight down beyond the point where that hide was attached, because the shaft would have come down onto a part of the slot, and the sharp end of the slot or the edge of the slot would of course have brought the hide in contact with the inside of the weight and would have had a tendency to damage it.

134 Q. 85. In that Royer machine which was so constructed there was no pressure from the bottom upwards upon the body of hides in the crib, was there?

Ans. No, sir; there was no pressure from the bottom.

Q. 86. What is the effect in breaking down hides or softening

them in a machine where the pressure is only by means of a weight applied to the upper edge of the body of hides?

Ans. It has the effect to force the hides away from the point of contact and gives it a tendency to rope up; and if it ropes up when it doubles back——

Q. 87. You use the expression "rope up." You mean, as I understand, to wind up into a rope?

Ans. To wind up in a rope or in a thick cable-like form.

Q. 88. What is the consequence if that takes place?

Ans. Just, for instance, as if you should roll this handkerchief up. The consequence is that when that hide doubles back on itself it makes a very large bunch, and it is impossible to get that bunch through between the shaft and the outside bar. Consequently something has got to give way. Either the hide must break away from the shaft and give it a chance to run or the machine will be broken.

Q. 89. Now would that be true in case the machine were constructed without projecting heads on the set-screws so that the weight could rest with all its force upon the body of hides in the crib?

Ans. There is a certain stage in the process of manufacturing this style of leather where you require no weight at all that even the gravity of a side of leather is more than is required. For instance, if you take this handkerchief, which is limp and soft, as the
135 hide will be after it gets partly softened, if it is attached to that screw on top the natural tendency is downward, and every time that that shaft makes a revolution it has a tendency to twist that hide. Its own gravity is sufficient. If that was horizontal, in that way, by taking off the pressure from each side the hide would naturally go where it belongs without any hindrance and the softening process would be continued.

Q. 90. When you use a vertical machine like that described in the Royer patent, if I understand you, the tendency of the hide, being limp, is to hang downward, and the revolution of the shaft has a tendency to roll it up into rope. Is that the way you wish to be understood?

Ans. Yes, sir.

Q. 91. I understand you, further, that when the machine is in a horizontal position, then the hide assumes its natural position against the bars of the crib?

Ans. Yes, sir. It has a tendency to spread. As hides require more room as they begin to expand, there is a certain time when it requires, in this method of working, compression. After that process or operation has gone to a certain distance the hides become warm and they again begin to expand, and if the pressure is not relieved at that time damage is done to the hide.

Q. 92. Do you wish to be understood that when that machine is in a horizontal position there is not that tendency to rope up into a twisted body or hide, but, on the contrary, to flatten it out?

Ans. That is what I mean to state, sir.

Q. 93. State now to this jury the practical importance in the manufacture of rawhides of having the machine horizontal instead of having it vertical, and refer in that connection, aside from the

matter to which I have just called your attention, to the im-
136 portant effects that belong to the method of treating hides when under that horizontal relation.

Ans. Well, in a machine which is horizontal you can manipulate the hide without much fear of damaging it or damaging your machine. Then, again, it gives you an opportunity to clamp your hides around the circumference of the shaft, which you could not do if your machine was in an upright position.

Q. 94. What is the effect that is produced upon treating a hide in case it is roped up as distinguished from being treated while it is in a flattened condition? What is the effect upon the product?

Ans. The friction becomes so great as to raise the temperature in the crib so high that it burns the hide and makes it comparatively worthless.

Q. 95. You say it burns the hide. Where does the heat come from? Let the jury understand that.

Ans. It is created by the extreme friction.

Q. 96. Incident to its rotation, I suppose?

Ans. Yes, sir.

Q. 97. Now, have you a record taken at the time of the operation of that Royer machine, or a memorandum?

Ans. Yes, sir; I have a memorandum.

Q. 98. Refer to it if you wish. If you have fully covered it I will not take up time. You can read it if you wish to.

Ans. My eyesight is very poor, I am not a very good reader, and I should prefer to have you or some one else read it.

(Memorandum read as follows:)

137 "*Memorandum of the Operations of the Royer Machine, Patented in* 1868.

Fitted the machine up November 21st and 23rd, 1885. We also attached our old knife-grinding machine to the machine for an automatic shipper. It worked well with no hides in the machine, but when hides were put in the force brought against the bevel gears gave them a tendency to kick out. On this account we abandoned the use until we devised a plan to hold the lever after it was shipped until it was time to reship.

November 23rd, after the machine was ready for working, at a quarter past four, we put in four hides, attaching them to the four bottom screws. After they were all secured we run them in, the crib being apparently full. After revolving a few times we put the weight upon the top. In order to get it on we were obliged to punch the hide down with the handle of a top maul. The weight being in place it compressed until it came down to the top screw; then the compressing process ceased. After running in this way for a time we found the hides were not softening any, so we took out the top screw which let the weight down further. In a short time the weight was down on the next screw which held the top hide. We run the hides in this way until 9 o'clock next morning. Finding they were doing no good, we concluded to make some

change for the better, if we could, and stopped the machine. In taking out the hides we found that little, if any, softening had taken place. We therefore put in two more hides for the purpose of filling the crib fuller. In running the hides in the power required was so great that it threw a six-inch belt off the pulley that drove the machine. We then took a piece out of the belt and laced it so tight that it was hard work to get the belt upon the pulley again. After the machine was started the belt came off several times before the coil run out; finally we had to hold it on with sticks. After running out two or three times one hide broke away and had to be taken out, which, owing to the construction of the crib, was a difficult matter. After this we let the weight down on the hides with its full force and let them run until noon. At this time we found the hides were doing little good, so we decided to change the pulleys and run faster, bringing up to a speed of 18¾ turns in place of 14 turns, as at first. After running it this way until about two o'clock the weight had got down on to the top screw and the hides were doing little good, so we decided to change them and give them another position in the crib. After this we allowed them to run until a quarter to four and then changed them, taking two men nine minutes to do it. The hides put in the crib were out of the same lot we were softening in our cribs in from six to eight hours. After this change we allowed the hides to run awhile longer, but they were not doing much and we decided to make another change by putting on a pulley that would run the shaft faster. At half past five we stopped the machine to make the change. The change was completed at about half past five the next morning. We then started the machine again. Finding it difficult to ship the bevel gears at that high rate of speed, after running until 8 o'clock, we decided to change back to the former speed. While this change was being made we took the hides out for examination and found them partly soft, but full of hard spots. They were also
138 damaged in many places by the projecting screws. We ground off all the sharp corners about the crib, but found a more difficult thing to contend with—that was, when the weight came down in contact with the top screw it soon wore a sharp edge upon it that would cut the hides. This seemed to be unavoidable.

We found the weight a very troublesome thing to handle, so much so that we were obliged to use a tackle to handle it. After the change being made, which consumed about one hour (in the meantime the hides having been regreased), they were put back into the machine and again started to work. They were allowed to run from this time until half past one, when they were again taken out for examination. Finding they had done but little, we changed them again, this time putting them in from the head. After running for a half hour we saw they were doing nothing, although they were compressed so much as to bring the weight down onto the top screw, so the compression could be carried no further. Owing to the hides being put in from the head, we found they had a greater tendency to rope up, also taking more power to drive them. After the hides had become somewhat soft, on account of the upright position of the

machine, they had a tendency to crowd down to the bottom of the machine, on account of their own weight, thereby causing them to heat and jam. This is all avoided in a horizontal machine.

As the belt we had on was not able to drive them in this state, we put on a six-inch belt from the main line to the counter from which the machine was driven. This change took until about half past two. We again started the crib, running until about four o'clock. At this time the hides became so roped and jammed that they threw off the belt and stopped the machine. We tried to get them loose, but found it impossible. We were obliged to take the machine to pieces, which took until ten minutes to five before we could get it together again. After getting it together again we shook the hides out and run them in again and run them until five minutes to six.

On the morning of the 27th we found that the machine had been somewhat sprung by the jamming of the hides.

On the evening of the 25th we tightened up all the bolts and started the machine at ten minutes to eight, running until about twenty minutes to nine. We then took the hides out and marked them, Tom DeVanney, Jr., doing this in presence of Mike McGowan. The ends were marked with a belt punch, 1, 2, 3, 4, 5. The hides were then examined, after which we decided to finish them as set forth in Mr. Royer's specifications. John McKelvey, the foreman of the currying department, was called; the hides were put in his charge and he was directed to curry them. At the same time we took out these hides we took out of one of our cribs 24 hides that contained about 50 square feet to the hide and weighed about 120 lbs. in the salt. The crib that these hides came out of is driven by a six-inch belt. The method of attaching the hides accounts for the difference of power required to drive the machine."

(Adjourned.)

139 BOSTON, *November* 5, 1886.

Direct examination resumed.

(By Mr. THURSTON:)

Q. 99. Mr. Coupe, we were engaged at the adjournment yesterday on the subject of the insufficiencies of the Royer machine in practical operation. I want to resume that subject. In the Royer machine that you constructed and put in operation how did you arrange the central shaft with respect to the means for holding the hides therein? How did you construct, I should say, the central shaft?

Ans. The shaft was constructed with a slot.

Q. 100. Take the model and point out just what that was, for the drawings will not show that plainly. You can take the shaft out to do so.

Ans. (After removing the shaft from the model.) That is the nature of the shaft as constructed in the working machine.

(Mr. Thurston pointed out to the jury the slot in the shaft and the set-screws.)

Q. 101. Now, in a word, Mr. Coupe, for I wish to take no more time than is necessary, you put the hides, four in number, one on top of the other, into that slit and pinched these screws up against them. Is that correct?

Ans. That is correct, sir.

Q. 102. That is the description in the patent, as I have understood you to say? Is that correct?

Ans. That is the description in the patent.

Q. 103. Now, what does your handkerchief represent (the witness having fastened his handkerchief at the top of the shaft in the slot)?

Ans. The handkerchief represents a hide attached to the top screw, but the hide would be stiff and comparatively rigid.

140 Q. 104. Language has been used in the testimony to the effect that the hides were fastened in the Royer machine by the snoot. Explain whether that is the same thing as fastening them by what is sometimes called the pate or head of the animal.

Ans. Yes, sir. The pate of a hide, under the common acceptation of the term, is the cheek or head.

Q. 105. Where does it come from the animal?

Ans. One cheek of the animal. That is usually called the pate.

Q. 106. It is fastened by the pate?

Ans. Fastened by the pate; yes, sir.

Q. 107. Now, explain with your handkerchief before the jury shortly how in the operation of that vertical machine the hides after they become flattened jam and fill the lower portion of the crib and become twisted up into a rope under frequent conditions.

Ans. On account of the shaft and the crib being a vertical shaft and crib the natural tendency of the hides is to go downward, and as they go down in the revolution of the shaft they have a tendency to twist. When they twist they rope up and become something like that (showing handkerchief bunched up), and form what I should call an irresistible bunch between the shaft and the inside of the bar.

Q. 108. Now, when the weight is placed above the mass of hides and the set-screw is extended beyond the surface of the shaft and hides, as shown in the drawings, then you stated that the weight would bring up on that head and would not exert any pressure. That was correct, was it not?

Ans. Yes, sir.

Q. 109. You also stated that to relieve that trouble you caused the weight to pass by the set-screw in your experiment so as to bear upon the hide itself. Is that correct?

141 Ans. If you remove the head of the set-screw and countersink the shaft so as to let the head into it the weight will pass down a trifle further, but it becomes held by the hide that is attached to the upper screw. Consequently in revolving first in one direction and then in the other it has a tendency to catch the hide in between the inside of the weight and a corner of the slot in the shaft and damage it.

Q. 110. Is that what you referred to yesterday as the tendency to cut up the hide and damage it?

Ans. Yes, sir.

Q. 111. Now, state to the jury whether, in a machine having a vertical shaft such as there shown and described in the patent, there is any capacity to arrange the hides around the circumference of the shaft; and, if not, why not.

Ans. There is no arrangement whatever in a vertical shaft to arrange the hides around the circumference of the shaft. It would be an impossibility to do it. You might attempt to make another slot on the other side or in some other part.

Q. 112. Stop right there. Do you mean cut a slot, for example, at right angles with the first slot, so that the two would intersect each other?

Ans. Yes, sir.

Q. 113. Suppose you did that, what would happen?

Ans. In case you did that you would have no place for your screws. You would have two slots, but no place to fasten your hides.

Q. 114. Then I understand you as saying, and with that I will dismiss the subject, that with a slotted shaft such as the patent requires it is impossible to arrange the hides in any other way than putting them all into that long vertical slot. Is that correct?

Ans. You might attach all the hides to one screw in the middle here, but if you did it would be impossible to run them into the crib, the bulk would be so large, and when you came to turn
142 your shaft in the opposite direction it would be an impossibility. They must be arranged on a vertical shaft so as to set one above the other.

Q. 115. Like sheets of paper or sheets of leather when folded one upon another or one above another. Which do you mean? Explain your meaning.

Ans. One above another.

Q. 116. Then is it correct to say that it is impossible in a vertical shaft having a slot to cut transverse slots or slots at any angle with the first vertical slot and secure holding devices to hold the hides in the shaft?

Ans. In my best judgment, looking at it from a practical standpoint, it could not be done.

Q. 117. You never knew of its being attempted in a vertical machine, did you?

Ans. No, sir; I never did.

Q. 118. Now, I wish you to state and illustrate, if you can, by any model which you have prepared, what the effect is when a vertical machine is used with a slotted shaft like the one described, and a series of hides, from four to eight in number, secured by set-screws in such slot, in turning said shaft with the hides attached, by rolling the whole mass up into a bend of large radius in the immediate neighborhood of the slot. Illustrate it by a model.

Ans. If I understand you correctly, you want to know what would be the effect in the crib if all the hides were attached in one

line on the shaft. The effect is to create an exceedingly large bunch.

Q. 119. Before going further let me interrupt you. Will you kindly show that model (witness having produced a small tin model) to the judge and then show that to the jury and explain just what you mean, to save time? (Model shown to the court and jury.)

Ans. You will notice, gentlemen, that that shaft, on account of that coil being so large, is entirely thrown out of its place,
143 which could not be done if it was in a regular working machine. The coil becomes so large and makes such a large bunch in turning the hides back on themselves that it is almost impossible, if they happen to get in that particular position, to turn them up round without either straining the machine or breaking the hides off from the shaft. Of course this here, as the hides are nailed onto this shaft, does not exactly represent it as it would be if one end was inserted into the slot, but the bunch is caused by the attachment of the hides all at one place comparatively as large as what it is there.

Q. 120. Now, in a working machine having a crib such as we understand the Royer machine has, the shaft cannot move laterally in its bearings, can it?

Ans. No, sir; it remains in the centre. It is kept stationary—that is, as far as moving to the right or to the left. It is kept stationary by the false heads and the bearings at the bottom of the crib.

Q. 121. Now, then, under those conditions something must give way to accommodate the existing facts, and what does give way; is it or not the hides that have to give way?

Ans. As you read in Mr. Royer's testimony, he has had the hide break away many hundreds of times.

Q. 122. In fact, is it true, as stated in that testimony, in substance, that under such conditions the body of the hides projecting beyond the true circumference of a circle would be forced against the walls of the crib unduly?

Ans. They most certainly would.

Q. 123. While we are on this subject, Mr. Coupe, although it is slightly out of the logical order, I wish to refer to your own machine, and it having already appeared that you arrange your
144 hides around the circumference of your horizontal shaft, illustrate by a model to the court and jury as in the former case how the hides are disposed in your machine.

Ans. The hides in my machine are attached to the shaft in a manner like that (illustrating).

Q. 124. By clamps, as testified?

Ans. By what we call a dog; a brass dog about six inches long, with teeth on it let into the recesses on the shaft. Through that brass dog is a screw that enters the centre of the shaft. The two dogs on each opposite side are set a trifle further along in either one direction or the other, so that all the four screws will not come into contact.

Q. 125. Now roll them up and put them into the tin case and exhibit what their relation would be to the central shaft and to the outer crib in contrast with the model you have just exhibited.

(Model shown to judge and jury.)

Ans. You notice, sir, that those folds are equally distributed around the whole circumference of the crib, which gives you a short bite, leaves the shaft in the middle of the crib, without undue strain, consequently saving an immense amount of power. Eight cribs arranged with fastenings of this kind can be driven with the same size belt as one crib in an upright position. Each of the eight cribs will be of the same capacity as the one crib.

Q. 126. In addition to the saving of power to which you have just referred what advantage results in the treatment of hides from such circumferential distribution of the hides around the shaft?

Ans. The result of the treatment of hides in a machine of this construction is that the hides are much more uniformly softened on account of their not having any tendency whatever to rope up or shrink; also on account of getting a much shorter bite than
145 you can get where the hides are all attached to one line on the shaft.

Q. 127. When you use the term "shorter bite" do you mean shorter bend?

Ans. Yes, sir; I mean a shorter bend in the leather, in the hide; something like this (illustrating with his finger). It would make a great deal of difference in a piece of leather of this thickness whether you got a bend to correspond with this that I am holding up or whether you got a bend to correspond with one something like my finger. The breaking capacity of a bend of this kind is not to be compared with the breaking capacity of a bend of this kind.

Q. 128. State what is the object of all machines of this character in dealing with rawhides with respect to breaking the fibre of the hide or bending the fibre.

Ans. The use and intention of all machines of any name or nature for the purpose that these are designed for is to break and soften the fibre.

Q. 129. In the model presented by the plaintiffs of what they suppose your machine to be the pressure plates are represented as being backed by coiled springs?

Ans. Yes, sir.

Q. 130. I will ask if you have ever used any machine where the pressure plates were backed on springs.

Ans. I never have employed a machine with springs on the back sides of the false heads, or what we call false heads, as represented in this model, although when I took out my patent I included that in my invention to avoid as much as possible any impostor that might come and claim that as an improvement; but I have never used it practically.

Q. 131. How are the pressure heads made to exert their pressure upon the hides in the machines which you have used?

(The witness answered by illustrating upon a model.)

146 Q. 132. Now, point out to the foreman, by this model, how you obtain your positive pressure to enable these diaphragms to move toward a common centre.

Ans. If you want to put on the pressure you just simply turn the crank in that way and draw the two false heads where the hides are attached. You notice that those two false heads approach the centre together so as to never throw the hide off from the point of attachment, and there is always sufficient space between the two false heads to allow you to get the hides close enough clamped to thoroughly soften them without interfering with where the hides are attached.

Q. 133. Now, please insert into the model the cloth or handkerchief, if you can do so quickly, for the purpose of illustrating how the hides act in a horizontal crib as distinguished from their action when in a vertical crib.

Ans. You will notice, gentlemen, that in loading a machine of this kind it can be done with one hand, whereas in loading a machine of this kind (to wit, a vertical machine) it requires two—one to hold up the hides and insert them and the other to set up the set-screws.

Q. 134. You have now done as I requested, have you?

Ans. Yes, sir.

Q. 135. Now, point out to the jury what you mean by saying that in a horizontal machine the hides act differently in the crib from the manner in which they act when secured in a vertical machine.

Ans. In a horizontal crib, after the hides become limp on account of the upright position of the shaft, they have a tendency to fall down. Of course, when they begin to drop, that has a tendency to make them twist or rope, as you might call it, and the con-

147 sequence is that when the machine reverses that rope, as it were, becomes so large in the bend that it stops the machine, whereas in a machine like this you simply release the power and your hide spreads itself at once and relieves itself to any degree that you require. In a word, this is an automatic crib that is entirely under the control of the operator.

Q. 136. Now, explain further what you meant yesterday by the statement that after the hides become heated they have a tendency to expand. And how would that tendency to expand display itself in a horizontal machine arranged with hides such as you have now placed in the model?

Ans. Gentlemen, it will be necessary for me to give you a little explanation. We will say, for instance, that you have three, four, or eight hides that you wish to put into the crib. You would, in the first place, take and turn the crib out to its full capacity, because when the hides are put in here they are exceedingly rigid and take up considerable room. After they have run in and revolved for a short length of time they become a little more yielding, and as they yield they necessarily take up less room; consequently you keep closing upon this pressure to continue the process of softening. After the hides come to a certain state they become somewhat warm, and as they warm they begin to expand. After

they begin to expand it is necessary to let out a little on the false heads, so as to give them a little bit more room. If that was not the case the hides would become so swelled that they would be too large to be worked in the crib, and the friction would become so great that it would heat the hides so as to damage them and make them worthless. Now, in an upright machine you may take
148 the weight off of the hides, but that does not relieve them of their own pressure. The gravity of the top hides keeps the others down, so that it has a tendency to make them pack, so much so that you have got to take them out and give them another position in the machine, whereas with this horizontal machine you can continue the process until the hides are softened.

Q. 137. Is it, then, true, Mr. Coupe, that, as the result of a change in the arrangement from a vertical to a horizontal machine, there is accompanied a distribution of the hides flatwise, so that the moving diaphragms, after you effect the pressure, do not cut off or tear the hides at their connection with the shaft?

Ans. There is no tearing of the hides by any operation of the false heads in a machine constructed as this is. It is impossible, because the false heads never pass back and forth, but pass by and around the attachment; consequently they cannot in any way interfere with it.

Q. 138. With the exception of the experimental machine which you were directed to construct after this case was begun and which you referred to yesterday, have you ever made use of any vertical machine for breaking hides?

Ans. I never have, sir.

Q. 139. Have you read the letters patent of the Messrs. Herman and Louis Royer in this case, and do you understand the contents of the same?

Ans. Yes, sir; I have read it several times, and I think I understand it.

Q. 140. State what machinery you understand from that specification is described in that patent.

Ans. I understand from this specification that the machine described in this patent is a machine with a vertical shaft, B,
149 with a slot and set-screws, said shaft having a forward-and-backward motion; also pins or rollers such as we have in this model and an iron weight, with grooves.

Q. 141. How do you understand that the machine is loaded and the weight applied for the purpose of performing any useful effect in breaking hides?

Ans. I understand from the drawing that the machine is loaded through the bars or pins or rollers.

Q. 142. How do you understand that the weight is applied?

Ans. I understand that the weight is simply put on the top of the vertical shaft.

Q. 143. Now, state in brief terms—because you have partially gone over the matter before—wherein is the functional difference in your machine, having a horizontal crib and shaft, over the ver-

tical machine of the plaintiffs, and what importance attaches to its being made horizontal.

Ans. The functional difference, as I understand it, is in the ability of the comparative machines to perform the work they are designed to perform.

Q. 144. What is the difference in the manner in which the work is performed in the horizontal machine from the manner in which it is performed in the vertical machine with respect to accomplishing softening the hides?

Ans. The difference is in the tendency that the two machines have to rope up, in the uniformity of the work, in the capacity to do the work, and in the less amount of power taken to drive the machine, and the easier manner in loading and unloading, and the adjustableness of the crib, and also being under the immediate control of the operator.

Q. 145. Inasmuch as the object of all machines of this character is to break the fibre of hides, state whether a machine of the
150 vertical type, that ropes the hides, does effectually break the fibre so as to make a proper article.

Ans. I don't think it is in the power of a vertical machine to make as good a product as that which can be made by a horizontal machine.

Q. 146. State whether in fact spots appeared which were unconverted rawhide or unsoftened rawhide in the vertical machine as you used it.

Ans. In the vertical machine that we used there was a great many of the shanks and parts of the head that had to be cut off, that somehow or nother the machine, on account of its peculiar construction, did not act and operate on, could not operate upon; and that is always the case and will be the case with hides that are attached in one line on the shaft. It makes the bulk so great that when the large bend passes round it will virtually leave one part of the crib unoccupied, something like that you see there. It is unavoidable, and that is the reason why parts of the hides don't get softened, whereas in a machine of this kind you have immediate control over the crib in such a manner that you can confine the hides to any desired extent.

Q. 147. There is one characteristic of your machine already proved to which I ask you now to direct your attention, and that is the capacity of the bars to move radially, outwardly. What use has that arrangement in your machine in connection with the other arrangement to which you have referred?

Ans. That helps to make the crib adjustable.

Q. 148. State how, in brief.

Ans. So that it has a greater tendency to give a uniform pressure and keep all parts of the hide in immediate contact with the bars themselves or the false heads.

151 Q. 149. The Royer machine, as described in the patent and exhibited in the model, has fixed bars only. Is it, in your judgment, of any importance that the bars should be movable with

respect to the capacity of the machine to perform a successful operation?

Ans. The bars in the complainants' machine, as I understand it from the appearance of the draught, are left in such a manner that they will revolve. This is quite an assistance to a machine of this kind, because if there is a large bunch happens to come on one of these intermediate bars, on account of its rolling sometimes, it will let the hide pass on by the upper roller or bar or pin or whatever it is called rolling a little.

Q. 150. There is no capacity in the Royer machine for the bars to move radially outward so as to increase the size of the crib, is there?

Ans. No, sir.

Q. 151. What advantage do you understand that feature to be? Do you consider it to be an important one in the defendants' machine?

Ans. Yes, sir; I do—a very important one. Mr. Royer has said that he has had hides break away many hundreds of times. I believe him; I think it is true. I do not see how it can be otherwise in a machine constructed like this. I suppose this (Exhibit 2) is a fair representation of his machine. It has been put in evidence as a model. We will say, for instance, you load that machine with five, six, seven, or eight hides, or whatever the case may be. They happen to be a little bit larger than the operator calculated they would be. You run them in, and after they have made one or two revolutions they break away. How are you going to get them out—stiff, hard, rigid hides? It is almost impossible with that
152 construction of a machine; whereas, if anything of that kind should happen with a machine of this kind (Defendants' Exhibit), it is possible, but very improbable, on account of its construction, you can remove the bars at once.

Q. 152. What effect in the operation of these two machines—the vertical machine of Royer and the horizontal machine of your own—is due to the capacity of these bars to move radially while the hides are being revolved on the shaft with respect to the casing of the mass of hides in the crib?

Ans. On account of the bars moving radially, it gives the crib a sort of adjustability, and the hides do not have that tendency to break away that they would have in a machine constructed like the complainants' model.

Q. 153. Is that feature of the capacity of the bars to move radially important or unimportant in connection with the false heads that are moved by positive pressure?

Ans. It is important.

Q. 154. Do you find anywhere suggested or indicated in the Royer patent that a horizontal machine can be employed in combination with pressure?

Ans. No, sir; there is no such thing implied in the Royer patent; I don't see anything of the kind.

Q. 155. Now, Mr. Coupe, I pass to another subject. The office of all machines of this kind, as you have stated, is to break the fibre

of the hides and soften them. Would a hide be of any value to put upon the market if it had simply been broken and softened in either the plaintiffs' or the defendants' machine, unless something else were done to it to make it merchantable?

Ans. I cannot conceive of the idea myself, and I have had thirty-four years' experience as a leather-dresser, of finishing hide or leather of any name or nature, without at some stage of the
153 process applying grease of some nature.

Q. 156. Suppose a hide, after it has been softened in any machine, yours or Royer's, is taken out and subsequently put upon the market, after a lapse of two or three months, what would be the condition of that hide then?

Ans. Do you mean to say if the hide was softened without any grease?

Q. 157. Yes; simply a rawhide run through these machines, as described in the Royer patent or as would be described in your patent, without any subsequent treatment with a stuffing, would it become stiff or not?

Ans. It would be impossible, sir; it would be impossible to soften a hide, a rawhide, in Royer's machine or mine, or any other machine, without applying some kind of stuffing to it.

Q. 158. Shortly stated, what is the effect of this stuffing, with reference to pliability and preservation?

Ans. I don't know that it has any particular effect as regards the preservation, but it makes all leather, no matter whether it is shoe leather, harness leather, belt leather, lace leather, or any other kind of leather commonly used in the arts—it makes it all soft, pliable, and easy to work.

Q. 159. Were you familiar with the common fulling machines used in the working of woolen fabrics and also used in the breaking down of hides that have been known to the various establishments in this country?

Ans. Common fulling machines?

Q. 160. Yes.

Ans. Yes, sir; I am perfectly conversant with them all—the fulling stocks, what is called the pounders, and the ordinary fulling mill. I have used them for years and years.

Q. 161. State in a few words, shortly, so that the jury will
154 understand it, just how those machines work in breaking the hide.

Ans. Do you desire me to give a description of a fulling machine?

Q. 162. Yes, in short terms, so the jury will understand it; not with any unnecessary prolixity, for we have had a portion of it already.

Ans. A fulling machine consists of a box about six feet long and two feet and a half wide. There is working in that box two hammers about two feet and a half long. They are made with tips on each end—iron tips. These hammers have two handles about ten feet long, such as I hold in my hand. The handles come down through the bottom of the box of the fulling mill, and they are at-

tached to connecting rods underneath that run back to a crank shaft. Upon this crank shaft is a pulley. When that pulley is started to work these two hammers continually go back and forth in this box, which is about six feet long and two feet or two and a half feet wide—they vary a little in size—and rounding on each end, so that every time the hammer gives the hide a punch it revolves it and turns it in another place. That is the ordinary fulling mill that has been used ever since I have been in the business and a great many years before.

Q. 163. Is or not the effect of such machines to bend, soften, and break every portion of the hides?

Ans. It breaks the hides. Those fulling machines are used very extensively, or, I might say, altogether, in the manufacture of glove leather, and you all know how soft a piece of glove leather is. That softness and pliability is all obtained in the fulling machine.

Q. 164. Now, from your long experience as a manufacturer of leather, practically, Mr. Coupe, state to this jury what would be the
155 value in savings in money or in any other way in the use of a Royer machine, such as is described in the Royer patent and as explained by the complainant, over one of the fulling machines in such common use as you have described. State fully.

(Counsel for plaintiff objects on account of the contradictory terms in which the question is put. It asks the witness to answer a question as to the Royer patent as described in the patent and as testified to by the plaintiff. The witness has given his interpretation of the patent, and it does not agree at all with that described by the plaintiff. I will not object to his testifying to the patent as he understands the patent, but I object to his interpreting the patent and Mr. Royer's testimony both. Of course, it is not his business to interpret either, but still I make that the basis of the objection, that it is not in the province of the witness to interpret Mr. Royer's testimony.)

Mr. Thurston: I will put it in a form there will be no objection to.

Q. 165. Assume the model now shown you, produced by the complainant, to be a correct exhibition of the machinery described in the Royer patent. State, from your experience as a manufacturer, what would be the advantages, in your opinion, in the use of a machine of this kind for breaking, boarding, or treating hides over a fulling machine for treating hides such as has been referred to as being well known in the art.

Mr. Wheaton: I object to the question because the witness is not shown to be an expert or to know anything about the use of the machine manufactured as that model is manufactured.
156 I understand the fact to be that he never in his life has used or seen used such a machine. I understand that from his testimony. Until that is proved I object to the question on the

ground that he is not an expert. I admit he is an expert in the fulling stocks, but not on this machine.

Mr. THURSTON: If the objection is that Mr. Coupe is not an expert if he has not been qualified as such, I am unable to know what can constitute a qualification to speak concerning a specific art with which a man for thirty years, more or less, has been connected and a patentee to the extent of some thirteen different patents. In comparison with the qualifications which most experts in patent cases present to the court he is in marked contrast. I propose to ask him his opinion, from his knowledge of the Royer machine as described in the patent, what he understands it to be and, as exhibited in the model, what would be, in his opinion, the savings and advantages that would come from the use of such a machine as that over machinery already existing in the art, known as fulling machines. That is the point to which my inquiry is directed.

CARPENTER, J.: It is undoubtedly the fact that the witness has not employed or, so far as is known, ever seen any machine like the Royer machine used with the skill which all mechanics ought to use in applying a piece of mechanism to practical use. That is undoubtedly so, as suggested, and it is undoubtedly true that there is very little evidence of any considerable acquaintance on his part with machinery in general; but it is the fact that he has been more or less employed—it does not appear in what capacity—about works in which the simple machinery used in preparing leather
157 has been in operation. It also appears that for a number of years—I do not know how many; I think it is not stated how many—he has owned works. it also appears that he has devised certain improvements, as he expresses them, and as they are apparently in the construction of apparatus *of* breaking hides in a crib I think he is competent to be asked that question.

Mr. WHEATON: The apparatus as he describes it would be entirely different from this, and the question asked him to compare it with a machine of this kind.

CARPENTER, J.: That is a criticism on the reliability and value of his evidence. Undoubtedly it is a fact that he never has fairly used a Royer machine and never has seen it. It is doubtless a fact he does not know that to use a Royer machine or any machine the proper mechanical adaptations must be made; that mechanical skill must be put into it. Doubtless he thinks, because that is the ground on which he has proceeded, that he must literally copy in order to test the machine; that he must literally copy it as it appears, and that when he encounters a trifling mechanical obstacle he must stop, and that therefore he did stop, in entire sincerity, no doubt, supposing that thus he had accomplished a fair and complete test. But all that does not seem to me to go to his competency to answer the question.

Mr. THURSTON: I see that the counsel misapprehends my question. I therefore will put it in another form, which will relieve it of any objection, I think.

CARPENTER, J.: You do not need to do that. Your question has been objected to and admitted.

158 Ans. From the construction of this machine, and having had the experience that I have had in working a machine that I consider to be made after the model or to be made after the draught of Royer's patent and working this machine, I would not take a machine of this description (Exhibit 2) as a gift and be compelled to work it, if it works anything like this (referring to Defendants' Exhibit of Complainant's Machine.)

Q. 166. Now, disregarding any peculiarities of construction in the patent of Royer which would make it inoperative practically, as with respect to the projection of the set-screws, but assuming that that machine be a vertical machine, simply with pressure applied to it, as exhibited in the model before you, how would such a machine compare in point of economy or utility with the previously known fulling machines in the art? And in answering this question pay attention to the subject which you have already testified to concerning the roping of the hide in a vertical machine.

Ans. Even though the shaft was countersunk and the heads of the screws were allowed to come flush with the outside of the shaft, so as not to interfere with the weight going down, I would not then, under those circumstances, use it in preference to an old-fashioned fulling mill.

Q. 167. Why not?

Ans. Because I think I could work the fulling mill to a greater profit than I could work a vertical machine with pressure applied from above.

Q. 168. And why to more profit or advantage?

Ans. Because I think it would do more work and make a better quality.

Q. 169. What would do more work?

Ans. A fulling mill.

159 Q. 170. Why a better quality?

Ans. Because I think it would more effectually break the hides.

Q. 171. Did you ever, in any machine for breaking down leather, know or hear of the employment of movable heads worked by screw or equivalent means before your invention?

Ans. I never heard the word- false head used.

Q. 172. Or any device—the names are nothing, of course—which was the equivalent to that false head, in your opinion?

Ans. No, sir; I never knew anything of the kind. I don't suppose that anything of the kind ever existed.

Q. 173. You have already stated that your leather demanded a higher price in the market than other leather. Do you repeat that statement? And what is the reason of it?

Ans. All the stock I have ever manufactured of any kind has always commanded a higher price.

Q. 174. I am speaking particularly only of the rawhide. Is that true of the rawhide as well as of the other leather?

Ans. Well, I think it is. I think I am getting a higher price today for my leather than anybody else, although I have a very strong competition with parties who are using.

Q. 175. There was a witness yesterday by the name of McMahon who testified, who stated that you used fulling mills at one time and abandoned them because they were a complete failure. State what the fact is with regard to them.

Ans. That is a bare-faced lie, plainly speaking, for the machines are in my employ at the present day.

160 (Counsel for defendants puts in evidence tin model of Royer shaft, marked Exhibit G; tin model of shaft of horizontal machine, marked Exhibit H; model of defendants' horizontal machine, marked Exhibit I; defendants' model of Royer machine, marked Exhibit J.)

Cross-examination.

(By Mr. Wheaton:)

X Q. 176. What was the diameter of the shaft in the machine that you made to represent the Royer patent? I mean the machine you made and worked, not the model.

Ans. This model, I believe, is made on a scale of a quarter of an inch to the inch, and by measuring the model I could give you the diameter.

X Q. 177. It is an inch and a half in the model, is it not?

Ans. Yes, sir.

X Q. 178. Then you made the shaft about six inches in diameter in the machine, did you?

Ans. I should think it was about that. It is anywhere from four and a half to six inches.

X Q. 179. What size shaft do you use in your own machine?

Ans. About the same size shaft.

X Q. 180. About the same size. You know what they are, do you not?

Ans. We have some four, some four and a half.

X Q. 181. Do you call a shaft four or four and a half inches in diameter about the same size as one six inches in diameter?

Ans. Well, no, sir; I don't call it any such thing.

X Q. 182. What do you mean by saying yours was about the same size as that one which was six inches in diameter, when yours was only four or four and a half?

Ans. If you get anywhere within a half or three-quarters
161 of an inch on a thing of that kind it is about.

X Q. 183. There is from an inch and a half to two inches difference, is there not, between four and four and a half and six? Would not a shaft six inches in diameter contain twice as much metal as one four inches in diameter?

Ans. I should think it would.

X Q. 184. Why didn't you make the shaft the same size as the shafts which you run in your own machines if you wanted to give it a fair trial and wanted to use your skill as an expert?

Ans. I carried the patent to a practical mechanic in Providence and requested him to make a machine to correspond with the drawing, and he did so, as I supposed, and this model was made from

the machine. I have never personally measured the exact size of the shaft, but my impression is that it is about the same size as the shaft that we use in our own machines.

X Q. 185. About what is the length of a hide which you work in these machines?

Ans. In our machines, sir?

X Q. 186. Yes.

Ans. We can work anything from a calf-skin that weighs no more than twelve pounds in the salt to a heavy cowhide that will go anywhere from sixty to eighty pounds in the salt.

X Q. 187. I inquired for the length of the hide which you treat in the machines.

Ans. Do you mean the extreme length of the hides, sir, from the tip or nose to the root of the tail?

X Q. 188. Yes.

Ans. Well, they will vary anywhere from three and a half feet to eight or nine feet in length.

X Q. 189. You understand that in the Royer machine the slot goes entirely through the shaft, do you not?

Ans. Yes, sir.

162 X Q. 190. You understand that you can put in the hides or two sides of that shaft, then, do you not, in the same slot?

Ans. I don't know how you manipulate the machine. I put them in all from one place—that is, between two of the bars, moving one of the bars.

X Q. 191. Cannot those hides be put in a part of them on one side of the shaft and a part of them on the other side?

Ans. Yes, sir.

X Q. 192. Now, if your shaft was six inches in diameter what would be the distance half way around it?

Ans. If it was six inches in diameter, three times the diameter is once the circumference.

X Q. 193. Half way around that shaft would be nine inches, wouldn't it?

Ans. Yes, sir; I should think so, or within a fraction of it?

X Q. 194. And the hides which you wind around that shaft would vary from three and a half feet to eight or nine feet in length, would they not?

Ans. Yes, sir.

X Q. 195. In your machine you can fasten a hide on each quarter of the shaft, can you not?

Ans. In our machine we can fasten it anywhere we think proper. It wouldn't make any difference whether we fastened it to the belly, to the head or tail, or anywhere else.

X Q. 196. What I mean is that in your machine, instead of puting in one on one side and the other on the other, as you cannot do in the Royer, you can put them in in four places?

Ans. Yes, sir.

X Q. 197. Now, if you put them in in four places on a six-

inch shaft, which is a very large one, the difference in length
163 from one place to the next would be four inches and a half, wouldn't it, or half of nine inches?

Ans. Yes, sir.

X Q. 198. And in Royer's case it would be nine inches from where you put one hide to where you put the other on the other side of the shaft?

Ans. Yes, sir.

X Q. 199. Then you would have an advantage of four inches and a half in the distance between which you would fasten your hides on the shaft over Royer, would you not—that is, yours would be four inches and a half apart and his would be nine inches, and the difference between four and a half inches and nine is four and a half inches?

Ans. The difference between four and a half and nine is four and a half?

X Q. 200. Yes.

Ans. Yes, sir.

X Q. 201. Then, so far as that question is concerned, all you gain is four inches and a half over Royer's, isn't it, when you use a shaft as large as a six-inch shaft?

Ans. What I gain practically——

X Q. 202. In distance, I mean; don't go off on something else.

Ans. I say that what I gain practically is what is represented on those models, or whatever you call them.

X Q. 203. That would be in a six-inch shaft. Now, if you take a four-inch shaft, which is the size you actually use, the distance around that would be twelve inches, wouldn't it?

Ans. Three times four is twelve; yes, sir.

X Q. 204. And half way around would be six inches?

Ans. Yes, sir.

164 X Q. 205. And half of that would be three inches?

Ans. Yes, sir.

X Q. 206. So that in the shafts which you did use of four and four and a half inches the difference in space around the circle of the shaft in which you would fasten the hides in Royer's shaft or could fasten them in Royer's shaft and fasten them in yours would be from three to three and a half inches only, would it not?

Ans. According to that theory.

X Q. 207. Well, is that theory exactly true, as matter of fact, or not?

Ans. Well, I have told you what I did practically; I haven't figured this out theoretically.

X Q. 208. I am not asking for theories at all. You know, as matter of fact, that the circumference of a round shaft is three times its diameter, do you not?

Ans. Yes, sir.

X Q. 209. And you know that if you use a shaft four inches in diameter or four and a half it will be either twelve or thirteen and a half inches in circumference, do you not?

Ans. Yes, sir.

X Q. 210. You know that if Royer uses a shaft of that size and puts the hides in from each side that the distance between where he puts his hides in will be half the circumference of the shaft?

Ans. Yes, sir.

X Q. 211. And that in a four-inch shaft it would be six inches and in a four and a half inch shaft it would be six inches and three-quarters, while if you fasten four hides around the diameter of the same shaft the hides would be fastened from three to less than three and a half inches apart?

Ans. Yes, sir.

X Q. 212. Now, do you pretend to tell this jury, after all
165 the talk, that the mere fastening of the hides so short a distance apart will have the effect of bunching the hides all upon one side, as you have attempted to demonstrate, the hides being from three and a half to eight or nine feet in length?

Ans. I have demonstrated it, sir, by the samples that I have shown you. Furthermore, the hides don't occupy the same position after the machine has made one revolution that they do before it has started; consequently the diameter of the coil increases as the hide is further wound up and brings the bite further apart at almost the end of the operation than when they first start.

X Q. 213. Now, I ask you if in reality the difference between fastening the hides to the shaft six inches apart or three inches apart has any perceptible effect in throwing the greater half of the coil of hides when wound upon one side of the shaft rather than the other.

Ans. It most decidedly has, sir. It makes an equal distribution of the several coils equally over the crib, as you will see readily by turning the other model, where the pieces of leather are all attached from one point.

X Q. 214. In this model which you have produced you represent the shaft as being one inch in diameter, do you not?

Ans. When I made that model I just simply took and cut off a broomstick without regard to the size and tacked those pieces of leather onto it as you see them now. I made no measurement of the leather or of the stick. I simply wanted to show the position that hides would occupy fastened to the shaft in the different ways.

X Q. 215. What are the hides which you have put here on this small shaft?

166 Ans. That is what we call tanned lace leather in this section of the country.

X Q. 216. It is the same thickness as the hides which are treated in your machine, is it not?

Ans. The hides that are treated in our machine are of all thicknesses, sir.

X Q. 217. Were not these pieces of lace leather which you have actually used treated in your machine?

Ans. These particular pieces?

X Q. 218. Yes.

Ans. That style of leather never goes into the machine.

X Q. 219. This is not split leather. The hides are full thickness, are they not?

Ans. That is a part of what we call a patna hide.

X Q. 220. I only inquire if it is a hide of full thickness.

Ans. The hide has been shaved and buffed.

X Q. 221. This shaft is only about a quarter of the size of the shafts which you actually use—that is, a four-inch shaft—is it not?

Ans. I have not measured the size of that. I just took a broomstick and cut it off without measuring.

X Q. 222. Measure it now, so you can tell what its diameter is.

Ans. That is as near an inch, I think, as you can get it. The other may be a little smaller or a little bit larger, because the broomstick is gradually tapering from one end to the other and one was cut a little lower down than the other, and consequently there will be a little difference in the size.

X Q. 223. The proportion, then, between the thickness of these hides and this model shaft, as compared with the proportion between the hides which you treat in the machines and the diameter of the shafts which you use or did use in what you call the Royer
167 machine is as one to six, is it not?

Ans. I don't know anything about the proportions of that. I have made no relative comparisons at all. I just simply took the broomstick and cut it off.

X Q. 224. Is it usually the case that the hides which you put into the same load in the machines are of different lengths?

Ans. With us it is our practice to get them as uniform in length as we can.

X Q. 225. When you do get them as uniform in length as you can are they still of different lengths?

Ans. Do you mean the hides that are put in the same crib?

X Q. 226. Yes, in the same load.

Ans. Well, it is our purpose——

X Q. 227. No matter about your purpose; I am asking for a fact. Are they usually of the same length, or do they vary a few inches in length?

Ans. They will vary a few inches in length.

X Q. 228. When you get them as nearly uniform as you can, about how much will they vary in length, how many inches?

Ans. They will not vary very much. Our hides are selected.

X Q. 229. Well, how much, as near as you can tell?

Ans. They might vary anywhere from six inches to a foot or perhaps eighteen inches, or something of that kind. It depends altogether upon circumstances. There are no hides alike any more than there are two individuals alike.

X Q. 230. Then if the hides are not of a length when they are all wound up around the shaft the outer ends of the hides terminate in different places, do they not?

Ans. I should think that was the fact.

X Q. 231. Now, where hides will vary in length from six
168 to fourteen inches does it in reality make any practical difference whether the forward ends of those hides are attached

to the shaft three inches from each other or six inches from each other?

Ans. Yes, sir; it does.

X Q. 232. What practical difference does it make? Where hides will vary in length from six to fourteen inches does it in reality make any practical difference whether the forward ends of those hides are attached to the shaft three inches from each other or six inches from each other as to the uniformity of the thickness of the coil on the different sides of the shaft when the hides are all wound up around it?

Ans. (Illustrating.) There is an exhibition of the difference that it makes.

X Q. 233. In this model as you have left it, with those straps, is there not a hollow open space within the bite of each one of those straps from the top to the bottom of the coil?

Ans. There is, sir.

X Q. 234. In the machines as they are actually worked is there any such space as that left in a coil of hides?

Ans. You will understand, you see——

X Q. 235. Just answer the question. I understand first rate.

(Question read.)

Ans. No, sir; because in a full-sized working machine the shaft will remain in the centre; it will not remove off by the pressure, as it does in this, but it remains in the centre of the crib.

X Q. 236. Then in that case, in the machines as they are actually worked, is the shaft drawn to one side of the centre of the cage as arranged in this model as you have now fixed it with the
169 coil of leather in it?

Ans. If that could be forced back——

X Q. 237. No "if" about it. The question is plain enough.

Ans. I say if that could be forced back to its proper relative position that it could occupy in the machine there would be a vacant space on this side that would not be occupied by leather or anything else.

X Q. 238. Which side would that vacant space be on? Would it be on the same side where this vacant space appears now, or on the opposite side?

Ans. It would be on the opposite side, because the shaft is stationary and it does not move as that moves there. You have got double the bulk of leather on one side there in that way that you have on the other, and that is simply because the hides are all fastened on one place.

X Q. 239. About how many times are hides wound around the shaft when they are fully wound up?

Ans. It depends altogether, sir, on the length of the hide.

X Q. 240. Well, on the average. Take your average size and shape; average-sized hides.

Ans. It would be necessary to figure that down to get it accurately.

X Q. 241. You know how to figure, I guess. Your hides, you say, range from three and one-half to nine feet in length?

Ans. Yes, sir.

X Q. 242. That would make an average of six feet and nine inches to each hide, would it not, in length?

Ans. It would make an average of what you say practically.

X Q. 243. Then your shaft is about thirteen inches around, or about that?

Ans. Somewhere about that.

170 X Q. 244. Then, how many times would an average hide wind around an average shaft?

Ans. It is not difficult for me to say how many twice two are or twice three——

CARPENTER, J.: No matter about that. If you can tell how many times thirteen inches goes in six feet and nine inches tell him; if you cannot, say so.

The WITNESS: I say a hide never occupies the same position in a crib.

CARPENTER, J.: That has nothing to do with the question.

X Q. 245. If the circumference did not keep enlarging on account of the coil winding up around it, it would go around almost six times, almost exactly, because if it was a four-inch shaft it would be one foot around it, and if the hide was six and three-quarters feet it would go six and three-quarters times around the shaft, but of course it keeps enlarging as it goes around, and it would probably——

Ans. I have answered it to the best of my ability. If I was out of the witness stand I would explain it to you perfectly.

X Q. 246. I want you to explain it on the witness stand. Now, have you ever seen where the central shaft was wound up with hides so that it filled the cage, as the cages are ordinarily filled in working, in practical operation, a vacant space on either side which would not be filled by hides?

Ans. Yes, sir.

X Q. 247. In what machine?

Ans. I have seen it in this machine.

X Q. 248. Have you ever seen it in your machine?

Ans. Yes, sir; I have seen it in our machine.

171 X Q. 249. Did that interfere with the practical working of the machine?

Ans. That is when the hides are put in.

X Q. 250. I say did it interfere any with the practical operation of your machine?

Ans. Certainly not.

X Q. 251. Is it not always the case that wherever a double comes in the hide that it is thicker through the coil of hides, measured radially, where that double occurs, than it is in the other places?

Ans. Not to the extent of the model you have in your hand, sir.

X Q. 252. As a matter of fact, is the coil of hides thicker, meas-

ured radially, where a double occurs, where the shaft revolves, than it is in other parts of the coil?

Ans. The hide or any individual hide itself is no thicker; but where a hide is doubled back on itself, of course, there are two thicknesses of hide there in place of one, yet the hide of itself is no thicker.

X Q. 253. I inquired if a coil of hide was thicker, measured radially, at the place where the hides double back on themselves than the same coil of hides is, measured radially, in other places.

Ans. I do not know that it is measured in other places. Six inches in one place is six inches in another; two thicknesses of hide in one place or two thicknesses of hide in another place does not make any difference.

X Q. 254. Wherever a hide doubles back on itself, just in front of the double there are two thicknesses of the hide, are they not, while just back of that double there will be a slight space where that particular hide does not measure at all?

Ans. I do not seem to get just what you mean.

172 X Q. 255. I will show it to you here in your own model. You see here the hide is doubled back. Take that thickness; here you have two thicknesses of the hide, have you not?

Ans. Yes, sir.

X Q. 256. Right back of that there is no thickness of this hide, is there, because the hide is not there?

Ans. If that machine was of a suitable nature it would compress that hide more in those places than it does now.

X Q. 257. Why in the world do you bring models here which are not of a suitable nature?

Ans. That is not designed to be a model; it simply shows the position of the hides in a crib, with a loose shaft.

X Q. 258. Now, take it in placing the hides in a crib, when a hide doubles back on itself, will there always be two thicknesses of the same hide just in front of the bite, at this point?

Ans. Yes, sir; there must be two thicknesses wherever there is a bite.

X Q. 259. Just back of that bite is there not a space where neither one of the thicknesses of that hide occur?

Ans. Yes, sir; there is a vacant space right in the rear of that bend.

X Q. 260. That is the case, is it, in the hides that are in the machines?

Ans. Yes, sir.

X Q. 261. Does that interfere with the practical working or operation of the machine?

Ans. It interferes with the practical working of the machine to the extent I have already explained.

X Q. 262. Does it interfere with the practical operation of your machine?

Ans. Not ours any more than any others.

X Q. 263. Does it in yours or in any others?

173 Ans. Not under the same conditions and the same circumstances it does not.

X Q. 264. How long since you have treated rawhides in your fulling stocks?

Ans. I have done it to a greater or less extent ever since I started business.

X Q. 265. How long since you have made this rawhide lace-leather in your fulling stocks?

Ans. Well, I commenced making it in about '67, I think.

X Q. 266. How long did you continue to manufacture this rawhide lace-leather in your fulling stocks after you commenced in 1867?

Ans. Some time in '68 I constructed another machine to experiment with that I thought was——

X Q. 267. Did you continue to manufacture rawhide lace-leather in your fulling stocks after you constructed this other machine in 1867?

Ans. Yes, sir; we have done more or less of it from time to time when the stocks were disengaged. We used to use the stocks for softening dry hides more especially.

X Q. 268. When did you last manufacture either a hide or a side of rawhide lace-leather in your fulling stocks?

Ans. If I remember right it must have been somewhere about '69 or '70; somewhere about then.

X Q. 269. Do you mean '69 and '70 or '79 and '80?

Ans. I mean '69. I started business in '65 for myself.

X Q. 270. Then you did not manufacture any rawhide lace-leather in your fulling stocks since 1869?

Ans. About '69, in the fulling stocks.

X Q. 271. I understood you to testify that the first rawhide lace-leather you made was much later than that—in the sixties.

174 Ans. No; I said it was '67 when I first began. I started business for myself in '65—September, '65.

X Q. 272. When did you first sell any rawhide lace-leather?

Ans. I do not think we sold any in the side until '73 or '74, I guess. What we used to get out we used to cut it up; we used to sell it in with our other leather.

X Q. 273. Was that manufactured by the same process that you manufacture your present rawhide lace-leather?

Ans. We manufactured it in the fulling mill and in the beater and pounder, as we call it.

X Q. 274. When did you first use the kind of stuffing you are now using in rawhide lace-leather containing tar?

Ans. I first used the kind of stuffing I am now using in 1876 or '77, I guess; I do not know exactly, but somewhere in that neighborhood.

X Q. 275. Have you used it ever since?

Ans. Yes, sir; to a greater or less degree. Sometimes we have——

X Q. 276. Now, when you first undertook the manufacture of

rawhide lace-leather in which you used stuffing containing tar did you use fulling stocks in that manufacture?

Ans. We did not use the tar at that time when we used the fulling stocks; we used stuffing made without the tar.

X Q. 277. Did you use any stuffing containing tar upon any hides that you ever manufactured by the use of your fulling stocks?

Ans. Yes, sir.

X Q. 278. When was that?

Ans. Oh, we have done it in an experimental way.

X Q. 279. When?

Ans. I think somewhere between '73 and '77.

175 X Q. 280. Do you remember what year it was?

Ans. No, sir; I believe not exactly. It was a new attempt of ours. We are always experimenting, changing, and improving.

X Q. 281. When was the last time that you manufactured or tried to manufacture rawhide lacing in those fulling stocks in connection with stuffing containing tar?

Ans. In regard to that question I most respectfully decline to answer it for the reason that it may have some bearing on another suit that is pending with the complainants.

X Q. 282. When was the last time that you manufactured or tried to manufacture rawhide lacing in those fulling stocks in connection with stuffing containing tar?

(Objected to and allowed.)

Ans. I cannot say exactly.

X Q. 283. Then how can you say that Mr. McMahon's statement was a bare-faced lie when he says you quit it in about 1877 or 1878, I think it was, as near as I can fix the date, and before you got up this other machine?

Ans. Mr. McMahon was a boy in my establishment. Part of the time he was doing chores and working on the table and knew nothing what was done in the room below, where the stocks were. The other part of the time he was a knivesman. He afterwards agreed to serve two years. During the time he was a knivesman he had nothing to do with any other department whatever; consequently he knows nothing about it. McMahon's testimony is wrong; he is prejudiced against me because I would not give him employment, and what he says is not to be depended upon. That I can prove beyond a doubt.

X Q. 284. As I understand his testimony it was that you

176 did try to use these fulling stocks before you got your product out of your present machine for the manufacture of this lace leather; that in the manufacture of this lace leather, as proved by other evidence, it contained a stuffing which contained tar, and our claim is that you cannot manufacture unless you do use a stuffing containing tar. Now, taking that in connection with his testimony that you gave up trying to manufacture it in 1878, at the time you got these other machines, you pronounced his statement to be a bare-faced lie. Now, I want to know whether you can con-

tradict that or not. I understand your testimony to be that you did, in fact, get the other machine at that time and used it.

Ans. Which other machine, sir?

X Q. 285. Such as is shown by your model put in evidence.

Ans. I did not get those machines until—the date of the patent shows when I got those other machines.

X Q. 286. Well, perhaps not like that, but a crude machine that you commenced with, a crude horizontal machine containing a circular shaft with circular bars around it.

Ans. There was a considerable length of time that we never used any tar at all. We used to use paraffine oil in place of it.

X Q. 287. I understand that, and we claim that that is not the kind of material manufactured now by you.

Ans. It was the same product.

X Q. 288. The date of the first patent you have introduced in evidence is January, 1878. Now, was it before that, and, if so, how long before, that you gave up the manufacture of this lace leather in the fulling stocks, as I understand you to say you did manufacture up to 1877?

Ans. Up to the time I took out that patent I was using the
177 fulling stocks, drum wheels, pounding machine, and any other arrangement that I thought proper for the manufacture of rawhide leather.

X Q. 289. Now, did you not understand Mr. McMahon to testify exactly that same thing—that up to that time or near that time you were using the fulling stocks and stuffing wheel and pounding machine?

Ans. I did not understand him exactly in that way. I did not abandon the use of these things until I took out this patent and got a working machine.

X Q. 290. Did he say that you did?

Ans. I perhaps may not have got a correct impression of what he did say. Up to the taking out of these patents I used the various devices that I had at the time for the purpose, and at different times I used tar and at other different times I used no tar. The product was exactly the same with the tar as without it, with the exception of the use of it; as far as the utility of the material was concerned it was the same. The simple object in the use of tar is to make the other ingredients penetrate a little more readily. We began then to use beeswax with our stuffing. You take tallow, resin, and beeswax and it makes an exceedingly thick stuffing, and it requires something to limp it up and make it penetrate; consequently we added a little tar. We were previous to this at times using some paraffine oil, which is very penetrating. Finally we gave up the use of all those things and went on to make a stuffing produced from tallow, tar, beeswax, and resin.

X Q. 291. Are you not aware that tar has the effect of preventing rats, mice, and vermin from eating the material?

Ans. Yes, sir.

178 X Q. 292. What was it that you meant to testify was the bare-faced lie which McMahon told?

Ans. That the machines were abandoned. They were not in use.

X Q. 293. Did you from Mr. McMahon understand that they were entirely abandoned for all purposes?

Ans. Yes, sir.

X Q. 294. Or that they were only abandoned for the purpose of manufacturing this particular article of rawhide lace leather?

Ans. I understood Mr. McMahon to mean that they were moved out—done away with, destroyed, not in operation.

X Q. 295. Then, if as a matter of fact Mr. McMahon only testified that you abandoned the use of them for this particular kind of lace leather and got another machine, would that have been true?

Ans. If Mr. McMahon had testified that I was not using those machines when he left for that purpose, that would be true; but I have not abandoned the use of the machines. I have them there yet in my employ; used every day.

X Q. 296. Now, are they used for the purpose of manufacturing this particular kind of lace leather or for other purposes?

Ans. They are used for other purposes.

X Q. 297. Well, was the same true as to the fulling mill? That is, when you got this new machine you gave up the use of the fulling wheel?

Ans. Yes, sir.

X Q. 298. And the stuffing wheel for the purpose of manufacturing this particular kind of lace leather?

Ans. After I got my patented machine in operation I gave the use of all other machines for the manufacture of rawhide leather.

X Q. 299. Now, in regard to this Royer machine which
179 you had made, was the machine purposely used with that upper set-screw projecting — the shaft or not?

Ans. No, sir.

X Q. 300. Was it mere accident that the set-screw was there or was it put there for a purpose?

Ans. Oh, no; the machine was made in that way, with all the set-screws projecting. Their instructions were to make it in accordance with the patent or the drawings in the patent.

X Q. 301. How much did the set-screws project outside of the shaft in the machine which you made when the hides were screwed tight within it?

Ans. I should think in the same proportion as they do on the model.

X Q. 302. When these set-screws in the model are screwed in so far that they reach the opposite side of the slot do they not project about a quarter of an inch outside of the shaft?

Ans. I should think they did.

X Q. 303. Now look at the drawings and the patent and see whether those set-screws are screwed in so far that the point of the screw reaches the opposite side of the slot or not.

Ans. No, sir; it does not show it in these drawings.

X Q. 304. Suppose these set-screws were screwed in so far they would reach the opposite side of the slot, as shown in the drawings, would they then give any appreciable projection?

Ans. It does not show any countersinking at all; it would be fastened to the head of the shaft.

X Q. 305. Then any mechanic would know that in putting them in so they would reach the opposite side he must countersink them?

Ans. Not necessarily.

180 X Q. 306. Would not any ordinary skilled mechanic know that?

Ans. No, sir; I should say not, because I gave this to an ordinary skilled mechanic, a man who is considered a very fine mechanic in Rhode Island, and that is the machine that he made, as he thought——

X Q. 307. You need not tell what he thought. If you want to know what he thought bring him here and let him tell you for himself. I am asking only for what you think.

Ans. Well, I say that I think I should have done it in the same way—made it according to this drawing.

X Q. 308. Well, is it made according to that drawing when it stands out a quarter of an inch with a square head, outside of the shaft, and this screw in so far that the point reaches the other side of the slot?

Ans. I should infer that there was a head to the screw.

X Q. 309. I am talking about just what that shows.

Ans. It shows it to me.

X Q. 310. Does it show the kind of a head that is shown in this—that is, a square, projecting head that would not go into an ordinary countersink?

Ans. It shows a square head; whether it is four-square, eight-square, or six-square I could not say. It does not show a round head.

X Q. 311. Now use your best judgment and state whether, if that were countersunk so that the screw could be put in so far that this point would reach the opposite side of the slot, *whether* the head would not be buried nearly or quite up in the body of the shaft.

Ans. If that shaft was countersunk and the head was of suitable dimensions it might be driven into the shaft flush with the

181 surface of it.

X Q. 312. The length of it would not prevent it?

Ans. No, sir.

X Q. 313. Now, the length of the screws in this model does prevent it?

Ans. Yes, sir; they do.

X Q. 314. Then, in this respect, this machine is not like the patent, is it?

Ans. Not as far as the length of the screws going in.

X Q. 315. In the same respect the machine which you made to represent the Rover patent was not like the patent, was it?

Ans. The machine was made exactly as that model is made.

X Q. 316. And, so far as the model disagrees with the patent, that machines disagrees with it, does it not?

Ans. Yes, sir.

X Q. 317. If the screw had been countersunk and screwed in in the manner indicated, so that its point would reach the hide on the other side of the slot, it would not then have stopped the weight from sliding through it?

Ans. The weight would have slid down a little further until it came in contact with the hide, supposing the hide to be in the machine.

X Q. 318. I say the set-screw itself in that case would not have interfered with the passing of the weight if it had been screwed in so that the point would reach the hide on the opposite side of the slot?

Ans. I suppose that if the screws were put in flush the weight would slip down to the bottom of the cage.

X Q. 319. Mr. Coupe, when you fasten the end of a hide by the pate or snoot in your machine and roll it up, what portion of the hide, when it is wound up, will be wound around the dog
182 which holds the pate or snoot of the hide?

Ans. There is no portion of the hide wound around the dog. The dog is made fast to the end of the pate. The end of the pate is sunk into a recess of the shaft, and after the hide makes a revolution the other part of the hide, if there is only one hide in the crib, passes over the top of the dog after it has been screwed to the shaft with the hide beneath it.

X Q. 320. Will the hide follow in a straight line at right angles with the length of the shaft as it is wound up in such case?

Ans. It depends somewhat on how the hide is doubled. The hide has a tendency to run straight out from the place of attachment, no matter whether it is attached from the belly, from the shank, or from the pate. It has a tendency to run out in the opposite direction.

X Q. 321. I do not understand what you mean by the term "run out."

Ans. (Illustrating with a handkerchief.) We will say, supposing the hide is attached in that particular place—we will call that the pate—and the pressure is applied. Supposing my fingers to be the two false heads, it would run in that direction.

X Q. 322. You mean, then, it would wind straight around the shaft, do you?

Ans. Yes, sir; straight in a line opposite from where it is attached.

X Q. 323. Now, when the hides are put into the Royer machine in a proper condition are they not partially rigid, so that they have an internal strength sufficient to make them stand up edgewise?

Ans. They do when they are first put in the machine and in what rigid state; but after they have been manipulated for a length of time they become limp or soft and have a tendency, by their own gravity, to go down if they are in the vertical machine. If
183 they are in a horizontal machine and you take away the pressure from them they have a tendency to spread out as the pressure leaves them.

X Q. 324. In your machine is not the shape of the coil of hide forced into form by the false heads, the winding shaft, and the bars which constitute the crib?

Ans. I do not exactly understand your question.

X Q. 325. As you use your machine do you run each crib between the false heads when they are screwed into position full of hides?

Ans. Yes, sir.

X Q. 326. Then are not the ends of that coil of hide formed against the two false heads?

Ans. What I should call properly the sides of the hide would come against the false heads and the ends in the opposite direction from the place where the hide was made fast would come in contact with the back.

X Q. 327. In such case would the sides of the coil be formed against the two false heads?

Ans. They would, sir.

X Q. 328. And the outside circumference of the coil would be held to its position by the bars which form the crib?

Ans. The outside circumference? Yes, sir; the outside circumference of the coil would be confined by the cribs.

X Q. 329. How nearly to each one of the false heads, as you have used your machines, would the dogs be placed which hold the pates of the hides?

Ans. That depends upon circumstances. When we load our machine the machine is in that position (illustrating). If the hides are small and we think they will occupy a certain given space we screw the false heads up to a sufficient distance to make the
184 space large enough, what we think will be sufficient to take in the hides. After every hide is attached we throw the clutch into gear; the shaft begins to roll, and as it begins to roll if we see that we have miscalculated in any way—that is, if we have left the false heads too far apart or got them too near—then we either take more space or screw up, as the occasion may require. This we do while the machine is in operation, so that it is a very easy matter to tell how much space is required.

X Q. 330. Do either one of your false heads ever pass over one of the dogs which hold the hides in the machine?

Ans. No, sir; they never pass over.

X Q. 331. Why not?

Ans. For the reason that part of the right and left screw on each side of the machine is left blank and you can only put it up so far, yet the space where the fastening takes place is now enough to always be within the limit of the coil after it is run into the crib.

X Q. 332. Suppose you should construct your machine with the buttons so far towards the ends that when the hides were run into it and you screwed up the heads that the head would pass over one of the buttons, dogs, holding the hides, would it not have the same effect in cutting the hides that the weight did in the Royer machine which you constructed?

Ans. It would have the same effect exactly, but with our method of fastening in these machines we get all the points of attachment

so close that it is impossible to cut any coil of hides, after it has run into the machine, to come forward—to have the false heads come forward near the point of attachment.

185 X Q. 333. Now, did you know all these facts that you have testified to at the time you made the Royer machine—that is, in regard to where the pates or snoots of the hide ought to be fastened as to their relative position with the false heads?

Ans. I knew those facts very well—perfectly well.

X Q. 334. Did your counsel advise you, when he advised you to get up that machine, that as a matter of law the specification and drawings of a patent were always sufficient whenever a practical machine described in the patent, covered by the patent, could be constructed if there was added the knowledge of a skillful mechanic to those drawings and specification?

(Objected to and allowed.)

Ans. To the best of my knowledge, all the information that I received from my counsel was to take that draft and have a working machine made from it, and, if I remember right, he used the expression, "We will turn their own guns upon them," or something of that kind. I do not know what it was exactly, but something to that effect.

X Q. 335. When you employed the foreman of the Franklin foundry to make that machine did you inform him where it was necessary to place the set-screws in order to prevent the weight from ever coming down either upon the set-screws themselves or hanging upon the edge of the hide which would be fastened by those set-screws?

Ans. I gave the Franklin foundry superintendent no instructions whatever only to make a working machine from a draft that the patent called for, and he said, "The draft only shows two screws, but in the specification it calls for four." I told him to make it in accordance with the draft as his best judgment dictated.

186 X Q. 336. How long had you known of Messrs. Wetherhead & Thompson at Pawtucket manufacturing that lace-leather by machines in which there was a central revolving shaft?

Ans. If my memory serves me right, somewhere in the latter part or some time in the year 1880 I was negotiating with Wetherhead & Thompson for the sale of my machine. We disagreed somewhat about the price, the royalty that I was to receive on the machines. About that time Louis Royer came along and induced them to put in a couple of his machines which had been thrown out by Schultz, as far as I could learn——

(Stopped by objection.)

X Q. 337. Did those two machines operate with a vertical revolving shaft?

Ans. Those two machines operated with a vertical revolving shaft.

X Q. 338. Do you know whether or not Messrs. Wetherhead &

Thompson continued to use those machines and manufacture this rawhide lace-leather and put it upon the market and sell it?

Ans. Of my own personal knowledge I did not see—I have not seen the machines in use within four or five years.

X Q. 339. When did you first see them in use?

Ans. Recently after they were put in.

X Q. 340. In 1878?

Ans. No, sir.

X Q. 341. What year was it?

Ans. In 1880, I think, if my memory serves me right. It was a considerable length of time after I had—it must have been over two years after I had taken out my first patent; in fact, I think, after I had got all my patents on the rawhide machines.

X Q. 342. Now, as you saw those machines at work with a vertical shaft, did the weight fall upon the set-screws anywhere?

Ans. If my memory serves me right, Wetherhead & Thomp-
187 son had arranged their machines so that the set-screw, the head of the set-screw, went in level or flush with the outside of the shaft, and they had a lever arranged on the top by which they could regulate this weight.

X Q. 343. The question was whether as you saw those machines in use that weight, when it was pressed upon, fell or came upon the set-screw so that it could not go any farther down.

Ans. No, sir; it did not come on the set-screw, because the set-screws had already been sunk into the shaft—the head of the set-screw.

X Q. 344. Were not the set-screws so far down on the coil of hides that the weight rested upon the coil of hides before it could reach the set-screws?

Ans. I should judge, if my memory serves me right, that the set-screws were set about the same distance apart as represented in this model.

X Q. 345. Did the weight cut their hides any?

Ans. I could not tell you.

X Q. 346. You do not know if the weights cut their hides any, do you?

Ans. No, sir.

X Q. 347. Have you ever heard any trouble with their machines on account of the weights cutting their hides?

Ans. I do not know that I have.

X Q. 348. If the set-screws in the Royer machines are set far enough below the upper edge of the coil of hides so that the weight will not rest upon the edge of any one particular hide held higher than the others by the set-screw, is there any danger of its cutting the hides?

Ans. If the coil of hides is sufficiently large to keep the weight continually above the screw or above the point of attachment
188 there is no fear of the hide being cut, but if it goes below it is impossible to prevent it.

X Q. 349. When a hide stiff enough to stand up edgewise is

fastened by the snoot by the set-screw will not that set-screw be very far below the upper edge of the hide?

Ans. It depends altogether upon the size of the hide. If it was a large steer hide and there was sufficient below the screw to support it and keep it up so that it could not get down it might remain up.

X Q. 350. Suppose that a hide stood edgewise and in a horizontal position lengthwise and the set-screws just at that place in the vertical shaft where it would fasten the pate of the hide, in such case would not the set-screw be very far below the upper edge of that hide?

Ans. I cannot conceive of a hide occupying that position in a horizontal machine.

X Q. 351. I am talking about Royer's machine, which is a vertical one.

Ans. I understood you to say horizontal. (Question read.) You have that word "horizontal," as I understand it, again.

X Q. 352. I speak of the hide being horizontal. If a hide stands on edge it stands horizontally, does it not?

Ans. (Referring to the model.) I never have been a witness and I do not know much about this sort of business, but what I understand you to say I should consider that (illustrating) a horizontal position of a hide.

X Q. 353. Do you understand that that hide in that position stands up edgewise?

Ans. I understood you to say with the hide in a horizontal position.

189 X Q. 354. Standing edgewise in this form and in a horizontal position reaching out this way, fastened on a vertical shaft by a set-screw which would be just high enough to catch the snoot or pate, would not that set-screw be very far below in point of elevation the upper edge of the hide?

Ans. I do not get what you mean, but perhaps you can inform me (illustrating). Now, that is a hide doubled up ready to go into the crib.

X Q. 355. I did not say doubled up, I said standing edgewise.

Ans. Do you mean in that position (illustrating)?

X Q. 356. Yes; so that the lower end of the hide rests on a level with the bottom of the machine.

Ans. You could not drive a hide into that crib through those bars in that condition.

X Q. 357. That is not the question. The only question is if you put it in in that position would not the set-screw which fastened the snoot or pate be very much below the upper edge of that hide in point of elevation?

Ans. You might attach a hide in that way, but you could not run it in.

X Q. 358. I am not speaking of running it in.

Ans. Of course, if you draw a line from the set-screw on a level to the end of the hide this part here would of necessity be above the set-screw.

X Q. 359. Now, in point of fact they fold these hides somewhat when they run them into the machine, do they not?

Ans. They do, sir.

X Q. 360. Is it not usual to fold them in such a way that the upper edge of the hide as folded will still be above the upper set-screw which fastens the pate to the shaft?

A. It is, sir.

X Q. 361. Then in such case will not the upper edge of
190 the coil of hides, when the machine is filled with hides, support the weight?

Ans. It will for a certain length of time, but when a hide becomes soft or limp, as you might say, to a certain extent they drop below the point of attachment.

X Q. 362. I understand you to say that when the hides become limp and soft they swell somewhat in size?

Ans. They do, sir, after a certain stage.

X Q. 363. Then if the lower part of that machine is all full of hides and as the hides become soft they increase or swell in size, how in the world can that coil of hide drop in there?

Ans. You will understand—we will say, for instance, you put five hides into this crib. When you first run those five hides into this crib it would almost—it would fill the crib up full to the top, and after they had rotated there for a considerable length of time, longer or shorter as it might be, they would become softer and consequently pack closer, take much less room in the crib, and would naturally come down to a certain distance. After the softening had continued for a certain time and the friction had become great and the heat had risen up considerably the hides would then begin to expand. You must then take off the weight. If you do not take off the weight, then your hides will become hot and will jam or burn. In this machine when you arrive at that state your hides have come so low down that it is necessary to take them out and change the position of the hides. They pull them out of the crib, give them a shaking out like that (illustrating), and perhaps change them to another part of the hide, at the same time raising the weight to give the hides more opportunity.

191 X Q. 364. Do they also put on another coat of stuffing when they take them out?

Ans. It depends altogether on the circumstances. If they require more stuffing they give it; if they do not, they do not.

X Q. 365. In your machine do you finish your hides, pulling them off in one direction, or do you first run them into the machine fastened to the shaft by the pate and afterwards take them out and put them in in other positions?

Ans. We as a rule run our hides from three different places, once from each hind shank and once from the head. We finish them from the head.

X Q. 366. At the time you had this Royer machine of yours made did you believe that Wetherhead & Thompson had been working several of their machines like the Louis Royer machine for a number of years making a good article of rawhide lace-leather?

Ans. I never thought anything about it or gave it a consideration in any way whatever. What Wetherhead & Thompson were doing at that time did not concern me any further than they were my competitors.

X Q. 367. How could they be your competitors on the market and you never give their machines or manner of operating them any thought at all?

Ans. There is a connection there that I do not seem to get through my head. I knew perfectly well at the time, or from hearsay, that Wetherhead & Thompson were running Royer machines. I knew that. I have had a good deal to do with Wetherhead & Thompson. We have had quite a controversy about a patent of mine that they used in connection.

X Q. 368. As a matter of fact have you not had a lawsuit with them?

Ans. Yes, sir; we have had a lawsuit with Wetherhead &
192 Thompson and we have got a decree against them for one of our patents.

X Q. 369. Is that a patent which applies to the manufacture of this fulled rawhide lace leather?

Ans. That is what gives me the advantage. Yes, sir; that patent is for a stretching machine for stretching whole rawhides manufactured by the mechanical process. It is a stretching machine which gives me an advantage of five per cent. of superficial area over anybody who does not use the machine.

X Q. 370. Now, what do you mean when you say that you knew nothing about Wetherhead & Thompson and never gave them a thought at the time you made this Royer machine?

Ans. I mean to say that at the immediate time you have referred to Wetherhead & Thompson were not a consideration with me. I was not thinking anything about Wetherhead & Thompson at this immediate time that you have reference to.

X Q. 371. When you ordered that machine to be made did you expect it was going to do good work as it would be made?

Ans. I expected it would do good work, as good work as a machine constructed in that way can do, and I gave the machine an honest and a thorough test, which can be testified to by half a dozen different men.

X Q. 372. Do you call that giving the machine an honest test when you put that set-screw a quarter of an inch longer than shown in the patent, and thereby had it hold up the weight?

Ans. I told the man to build that machine according to the construction of that patent, and left it entirely to him to do it,
193 believing, as he was a practical mechanic, that he would do it, and I suppose he did; if he did not, I do not know anything about it.

X Q. 373. Was not your attention called to the fact this forenoon that there was a difference between that machine and the patent in the length of the set-screws?

Ans. You did call my attention to that fact.

X Q. 374. Did you not acknowledge that it was a fact?

Ans. I did acknowledge it. I made the acknowledgement that you speak of, but I wish to convey the idea to this jury that that set-screw was not put in there with any intent to defraud or deceive or anything of that kind. That model was made on the square, made as near as I know to represent the machine, the working machine that was made from the drawings and the specification.

X Q. 375. Did you not also testify that on account of the weight coming in contact with the set-screw where it extended beyond the shaft when the hides were screwed in that it could not go any further?

Ans. I did testify so, sir.

X Q. 376. But that it interfered with the working of the machine?

Ans. I did testify so.

X Q. 377. Now, after having your attention called to those differences between the patent and that machine what do you mean by saying that that machine was given an honest test, that it was made on the square?

Ans. I mean what I said. I mean that there was no intention to defraud, misrepresent, or deceive. The trial of that machine was made with the best knowledge that we had of it.

X Q. 378. Was not that best knowledge used in the direction to make that machine a failure instead of a success?

Ans. No, sir.

194 X Q. 379. Could you not, if you had chosen, with your knowledge at that time of these rawhide machines, knowing how these were constructed and operated, having seen the Royer machines worked and operated at Wetherhead & Thompson's—could you not, with all that knowledge, *make* a machine that would be a success and that would have worked successfully if you had wanted to?

Ans. If I had made a machine personally myself I could have made a machine that would not work, but I did not do that; I took it to a practical mechanic to make, and he made it according to the drawings of the patent.

X Q. 380. Why do you keep repeating that he made it according to the drawings, when you know that he did not, so far as the length of these set-screws was concerned?

Ans. That is a little matter, sir, that anybody might do. There was no intention to do anything of that kind.

X Q. 381. Do you not know perfectly well that there was an intention to have the set-screws so long that the weight could not go below them, and also place the set-screws so high that the weight would come in contact with the upper set-screw before it would be supported by the upper edge of the coil of hides?

Ans. No, sir; I know that there was not any such intention.

X Q. 382. Did you not keep the working machine in that position after you found that it did operate in that way—that is, the set-screw preventing the weight from coming down so that it would be supported by the coil of hides?

Ans. No, sir.

X Q. 383. Did you not so testify this forenoon?

Ans. I testified that I continued to work it.

195 X Q. 384. Did you keep using the machine with that upper set-screw extending outside of the shaft, with the weight resting upon it, so that the weight could not go any lower, and the head of the set-screw even cutting into the lower part of the weight?

Ans. If I remember right I think I said that we punched the hides down with a top maul to get them into the crib—to get them in below the top of this shaft, so that we could get the weight on that way, and then we let the pressure of the weight compress the hides itself.

X Q. 385. Did you not testify that after awhile the weight came in contact with the head of the upper set-screw which extended outside of the shaft?

Ans. Yes, sir; I did testify that it came in contact, and so it did.

X Q. 386. Did you not testify that you continued to work the machine in that position and condition?

Ans. We continued to work it. It might have turned a few revolutions, but we did not continue to work it, not practically with a desire to do anything of that kind. It was the natural result, after this thing had come down here, the hide had got below the screw, that it would rest on that. Well, it didn't take but a few revolutions of that iron in contact with this, with a hundred and some odd pounds on top of it; it didn't take long to wear it off, wear it kind of sharp. Well, we finally took out that set-screw and let it go still further down.

X Q. 387. Did you take out any hide?

Ans. Take out any hide? There was one hide broke out when we were running them in, but that didn't prevent what there was left from filling the crib up to the top, so that we could get the weight on and see the operation of the weight.

X Q. 388. Now, if after that hide broke out the rest of the hides filled the crib to the top, how could the weight rest upon the

196 set-screw which was below the top?

Ans. After that hide had been taken out it broke out in running in. The others were run in. They were run in, and after they were run in they projected above the top so that we had to force them down with a top maul. We let that weight down until it came far enough down to come to that set-screw, and as that set-screw had no hide on it we took it out and let it go still further down, and it wasn't very far before it got down to this.

X Q. 389. To the next set-screw?

Ans. Yes, sir.

X Q. 390. Well, did you continue to work it then?

Ans. No, sir; we changed the hides, as you will see from the memoranda I made. We changed the hides and put them in another position. I can't exactly remember minutely at this present time the exact detail, but I made a memorandum of it myself. I sat there and watched the working of the machine. There were

three or four other parties there that were doing the work. I saw all the operation.

X Q. 391. How do you account for the fact that every other one of the Royer machines which you knew about worked successfully and this one of yours alone failed if you intended to give the Royer machine an honest test and did give it an honest test?

Ans. I know that all the Royer machines have not worked successfully, and I know that the Royer machines that Wetherhead & Thompson are working today are machines that they have improved upon and are not like the Royer patent at all. Further, I know that a firm of Philadelphia put in a Royer machine, and they told me——

Mr. WHEATON: Never mind what was told you.

The WITNESS: —they were duped out of six or seven thou-

197 sand dollars——

Mr. WHEATON: Never mind what was told you.

The WITNESS: —and were not able to use it, and that they threw it out.

X Q. 392. Why do you insist on telling what was told you?

Ans. They threw it out and put in one of our machines.

X Q. 393. Why do you insist on telling what other told you when I don't want you to, when a little while ago when I put a question to you you said you didn't know it of your own knowledge, and so didn't want to tell?

Ans. Well, I will endeavor not to do so any more. I am unaccustomed to this business. I have never been a witness before.

X Q. 394. Did you see that machine in Philadelphia yourself?

Ans. I did.

X Q. 395. When did you see it?

Ans. I can't tell the exact time. It is one of the Louis Royer improved machines; a machine different from this altogether.

X Q. 396. Did a gentleman from New York by the name of Antoine Heim go with you to Philadelphia to see that machine?

Ans. No, sir; he did not.

X Q. 397. Do you know when that Philadelphia machine was taken out?

Ans. I can't remember the date.

X Q. 398. Was it before or after 1878?

Ans. I can't remember that exactly.

X Q. 399. Did you see that machine before you commenced trying to manufacture this rawhide lace leather in the fulling stocks?

Ans. No, sir; I did not.

198 X Q. 400. Did you see it afterwards?

Ans. I couldn't tell you exactly. I was in that establishment quite a number of times. I don't know just exactly the last time that I did see it.

X Q. 401. Did you see it while you were trying to manufacture this fulled lace leather in the fulling stocks and stuffing wheel?

Ans. No, sir; to the best of my knowledge it was some little time after I had taken out my first patent, if I remember right.

X Q. 402. Just think a little while now. Wasn't it before you commenced getting up your horizontal machine?

Ans. No, sir; it was not, to the best of my knowledge.

X Q. 403. Did this Mr. Heim act as an agent in selling your lace leather?

Ans. No, sir; he acted no more as an agent than any other dealer in the city of New York. We used to sell him goods the same as we sold anybody else.

X Q. 404. Did you find at the same time that he had your goods on sale; that he had goods manufactured in San Francisco by Herman Royer for lace leather on sale also?

Ans. I don't know whether he had goods manufactured by Herman Royer or not.

X Q. 405. Did he not so inform you and show them to you?

Ans. I saw some of Herman Royer's leather in the city of New York, but just exactly what time it was I couldn't say.

X Q. 406. Was it at Mr. Heim's place?

Ans. Yes, sir; at Mr. Heim's place.

X Q. 407. Did Mr. Heim inform you that it was a better lace leather than that that you were then making and would sell better?

Ans. Better than my rawhide?

X Q. 408. No; better than the lace leather you were then 199 selling, which was not rawhide.

Ans. I don't remember that Mr. Heim ever said anything of that kind.

X Q. 409. Was it not after you saw Herman Royer's rawhide lace leather at Mr. Heim's place, in New York, that you went to Philadelphia and saw the Louis Royer machine there?

Ans. It was after I saw rawhide leather at Antoine Heim's, in New York, that I saw the rawhide machines in Philadelphia. I had never seen a Royer machine, or any other machine for the manufacture of fulled rawhide, before the one that I introduced myself.

X Q. 410. Which one?

Ans. This one, in its first crude state.

X Q. 411. Was the first horizontal machine which you made with a central revolving shaft and a row of bars on the outside the first machine that you ever saw or knew of manufacturing fulled rawhide leather as it is now manufactured by you and Wetherhead & Thompson?

Ans. I don't know anything about Wetherhead & Thompson. It was the first machine that I ever saw myself personally for the manufacture of fulled rawhide leather. The double-crib machine, the crude machine that I first made, I have reference to now.

X Q. 412. What earthly object would it have been to you to have made a Royer machine at the time you had this one constructed that would have done good work?

Ans. Common decency and justice to mankind requires a man to do that. I made the machine, or instructed a mechanic to make the machine, according to the drawing in the patent.

X Q. 413. How did you expect the construction of that machine

to do justice to mankind? How did you intend to use it to
200 produce that effect?

Ans. I had nothing to do with the construction of the machine. I ordered the machine built according to the draught of the patent and discharged my part of the duty faithfully, and when it was built and I received notice that it was ready I sent after it and put it in operation.

X Q. 414. What was your object in having that machine built?

Ans. My object was to test the quality of the machine.

X Q. 415. What object did you have in testing the quality of the machine?

Ans. So that I could be able to testify to the merits of the machine.

X Q. 416. Did you not have it made so that you would be able to testify to the demerits of the machine instead of the merits?

Ans. No, sir, I did not. The machine is there; it can stand on its own merits. I am perfectly willing that Mr. Royer should come to my establishment, if he thinks proper, and try it.

X Q. 417. Have you in fact made any other use of it than to testify to its demerits?

Ans. I never have made any use of it further than to test it. After I had done that I took the machine down and put it away. I don't consider that it could be used in comparison with a machine like mine.

X Q. 418. Did you not in fact have it built by the advice of your counsel, in order to make some kind of testimony out of it for this suit?

Ans. It was expected when we made that machine that we should use our experience with it in evidence here; we should be called upon, and it was made so that we might be able to conscientiously testify to the merits or demerits of the machine.

X Q. 419. Then your object in having it made was not
201 solely for doing justice to mankind, was it, but you had a further object of using it, or your experience with it, as testimony in this case?

Ans. Our object was to get the merits of the machine and find out if it had any.

X Q. 420. Now, so far as you were advised at the time, would the evidence of your experience with that machine have been in your favor in this case, providing the machine had worked successfully?

Ans. If the evidence had not been in my favor I should have been compelled to have submitted to it, because it would have come out in cross-examination whether I had ever had any experience with a machine of that kind or not, and then I should have been compelled, as I suppose, to have told what I knew.

X Q. 421. When the weight fell down on the second set-screw, after you took out the first one in that Royer machine, why did you not either countersink that to give the machine an honest test or take it out?

Ans. I didn't consider, sir, that I had a right to change that ma-

chine in one iota from what I thought the patent called for. I didn't consider that I had any right to countersink, but I will tell you what I did. I went to work and put in more hides, so as to fill the machine fuller and give it all the show it possibly could have.

X Q. 422. Then, at first, you worked the machine without filling it with hides, did you?

Ans. I told you one of the hides broke out.

X Q. 423. Well, that didn't break out, then, on account of the machine being too full?

Ans. It broke out because the set-screw was insufficient to hold its position in the slot.

202 X Q. 424. Do you recollect the date of your stretcher patent?

Ans. No, sir; it is not fresh in my mind at present.

X Q. 425. Did the Wetherhead machines have a central vertical revolving shaft?

Ans. They did.

X Q. 426. Were the hides fastened to the shaft?

Ans. The hides were attached to it by an improved device. Inside of the set-screw they had a disc with a corrugated surface that came in contact with the hide.

X Q. 427. Did it have a crib around that central shaft?

Ans. It had a crib around the central shaft, but the crib was after the pattern of the Louis Royer improved patent that opened in two halves and gave you a chance to get at it. It was a thousand times better machine than this, if I might use that expression, almost.

X Q. 428. I guess you are right; that is one you made. When the machine was at work and filled with hides, was there a crib then around the central shaft?

Ans. There was. I don't see how you could get the machine to work and filled with hides without. The crib composes a part of the machine and it would be necessary to have the crib in order to fill it.

X Q. 429. Were the hides first fastened to the central shaft and then drawn into the crib by being wound around the central shaft?

Ans. Certainly.

X Q. 430. Was there any false head or weight that rested upon the upper edge of the coil of hides in the Wetherhead machines?

Ans. They have a false head, as I stated before, that comes down like this with a lever that runs out about ten feet long. On

203 one end is a tackle attached to it to pull down on it and something else to relieve the pressure.

X Q. 431. Now, in that case, using a lever that way, the false head was adjustable, was it not, so that it would raise up, relieving the weight when the hides expanded by getting soft and hot in the machine?

Ans. It was a method to relieve the weight from the hides, just as if you got up and pulled it up.

X Q. 432. In your case you set the false heads rigid, do you not, but make the bars somewhat yielding by virtue of the springs on the outside of the bars?

Ans. I said we did not use the springs.

X Q. 433. I speak about the springs on the outside of the longitudinal bars which form the crib; have you not testified that you used them?

Ans. Our false heads are what you might call comparatively rigid. They have a little work each way; they are not snug; jammed up; they work a little; a trifle.

X Q. 434. Are the bars which form the crib rigid, as they are in the plaintiffs' patent, or are there springs put back of each one of those bars, so they may yield a little as the hides swell in size?

Ans. The bars are so arranged that they go up and down.

X Q. 435. Are they permitted to do so by means of yielding springs on the outside of each bar?

Ans. In some of the machines we have the springs, and in some of them we don't use them. In one machine we have the springs entirely, but we don't use any endwise pressure at all.

X Q. 436. Your patent shows the spring, does it not, outside of each false head?

Ans. We don't use it.

204 X Q. 437. I inquire if you are not aware that your patent shows it.

Ans. Yes, sir; my patent calls for it.

X Q. 438. Now, I will inquire whether you remember testifying in this way in a deposition made by you in one of the other cases:

"Int. 11. State whether or not the fulling machine employed by you in fulling rawhide is described and shown in any of said letters patent. Ans. The fulling machine used in the manufacture of rawhide lace-leather is described in patent 202,414, which is an improvement on patent No. 149,415. This is the machine we have used since the issue of the patent No. 202,414."

Do you recollect giving that testimony?

Ans. I don't remember that, but I presume I gave some such testimony as that.

X Q. 439. Do you understand that to be the truth now?

Ans. It is the truth, substantially, with the exception of the springs that I have spoken of.

X Q. 440. Now, patent No. 202,414 is the very one which shows these springs on the outside of the heads, is it not?

Ans. Yes, sir.

X Q. 441. Then you will hardly find fault with us if, acting under the testimony you gave in that case, we make our model with these springs, will you?

Ans. I have not found any fault with your making that model myself personally.

X Q. 442. How many hides does each one of your cribs average to manufacture per day?

Ans. If you will put that in a little different form I will answer it.

X Q. 443. Answer it in your own form; just as you would if it were asked as you desire.

Ans. The number of hides made depends upon the size. In all our proceedings we are governed more by feet.

205 X Q. 444. How many square feet of fulled rawhide lacing does each one of your cribs average to manufacture per day?

Ans. One of these six-crib machines has a capacity of 600 feet a day or thereabouts. A good deal depends upon the quality of the hide and the nature of the hide and how it is dressed, etc.

X Q. 445. How many feet do you say that each hide will average?

Ans. We have kept account for a number of years, and we have averaged them about twenty-five feet to a hide.

X Q. 446. That is, twelve and a half feet to each side?

Ans. Yes, sir.

X Q. 447. How many cribs did you have in use in 1884, for the whole season?

Ans. I think we had in operation seven machines. Two of them were four-crib machines, two of them were eight-crib machines, and two of them were six-crib machines, and then we had one, what we call the elephant, with one crib.

X Q. 448. How many did you have in constant use in 1883?

Ans. I think we had four more six-crib machines in 1883.

X Q. 449. How many cribs did that make you use in 1883?

Ans. Forty-nine cribs.

X Q. 450. You used them all through the year 1883, did you?

Ans. We were using them all in the year 1883, but after that we made a decided improvement on our machines, so that we were able to throw out four of them, and do the same amount of work with the six left.

X Q. 451. How many cribs did you have in use in 1882, throughout that year?

Ans. We had the ten machines then, or eleven machines with the one-crib machine.

206 X Q. 452. The same you had in 1884?

Ans. Yes, sir.

X Q. 453. Did you have the same in 1881 throughout the year?

Ans. Well, no, I don't know that we did; I can't remember just exactly. If I had our books here I could tell you exactly when we put the machines in.

X Q. 454. Fix it as near as you can.

Ans. Well, sir, it would be impossible for me to say with any accuracy, but I am under the impression that some of those machines, I won't be certain, but some of them, I think, were put in in 1881 or 1882; I can't tell for a certainty.

X Q. 455. Do you recollect how many cribs you had in use in 1880?

Ans. I think we must have had at least six machines then; but I remember now, referring back to the question you asked me before, that we were putting in what we called our elephant when Mr. Royer, Herman Royer, came to visit us.

X Q. 456. How many cribs were there in those six machines?

Ans. Well, I have an idea that four of those machines were six-crib machines and two of them were eight-crib machines.

X Q. 457. Have you been manufacturing—by you I mean you and the codefendant, Mr. Burgess—this fulled rawhide leather ever since you started in 1878, constantly?

Ans. Well, we have been making it to a greater or less extent, in one way and another, since the time I told you first; but for the last four or five years I might say we have been quite heavily engaged in it.

X Q. 458. When Mr. Royer made you the visit you spoke of in your direct examination, what passed between you and him with regard to this fulled rawhide lace-leather that you were manufacturing?

207 Ans. Well, I can't remember definitely all the conversation. I can remember Mr. Royer's saying, after looking around, that I knew more about rawhide leather than any man he had met.

X Q. 459. Didn't you and he have some high words there?

Ans. Well, I don't remember any high words.

X Q. 460. Is it possible you remember just that one remark of his and cannot remember anything else—the principal object of his visit?

Ans. Mr. Royer said he was going to look around to see what people were doing, and I showed him all around the works. There was considerable conversation about the merits of the stock and one thing and another. I showed him the stock, turned it up to him, that I was making. Every side of our leather is branded with our name, and it is known all over the United States as our manufacture, and there is no deception about it.

X Q. 461. Don't you recollect there being any high words there on the part of Mr. Herman Royer?

Ans. No, sir; to speak distinctly, I don't remember that there were any high words.

X Q. 462. Did he tell you the object he had in looking around to see what people were doing?

Ans. Well, I think he said something about somebody infringing. I think he said something about trying to get into some places, and he had been refused. I think Mr. Charles J. Sherne was one of the places, if I remember right, he spoke about, in New York, a man who is manufacturing fulled rawhide.

X Q. 463. What did he claim that some people were infringing at that time?

Ans. Well, he didn't say anything definite.

X Q. 464. What did you understand that he intended to assert that some people were infringing—any patents of his?

208 Ans. I don't know what he intended to assert. I suppose he wanted to convey the idea to my mind that somebody was infringing upon his patents.

X Q. 465. Did you know at that time that he had any patents?

Ans. Well, I had heard of Mr. Royer. I had heard of him, but I never had seen him. I had seen his brother.

X Q. 466. Do you remember when you first heard of Herman Royer?

Ans. No, sir; I do not. I could not say.

X Q. 467. Wasn't it at Mr. Heim's office where you saw the rawhide leather that Mr. Herman Royer had sent there?

Ans. No, sir; I think the first time that I ever heard Herman Royer spoken of was by Louis, and at that time he didn't say anything in favor of him, but nothing relative to this case.

X Q. 468. Did you inquire or did anybody inform you who manufactured the rawhide leather which you saw at Mr. Heim's place in New York?

Ans. No, sir; not to the best of my knowledge. I don't think that Mr. Heim's name was ever mentioned, if I remember right.

X Q. 469. I think you do not understand my question. At the time you were at Mr. Heim's and saw this rawhide leather there did Mr. Heim or any one else at that time inform you who manufactured that rawhide leather?

Ans. Well, I don't know whether he said it was manufactured by one Royer or another, but if I remember right there was the name of Royer on the leather—stamped on the leather—but who it was made by, whether it was Louis or Herman, I couldn't say.

X Q. 470. Was the place of its manufacture, in San Francisco, also stamped on the leather?

209 Ans. It might have been, but I can't remember distinctly. I have no doubt it was.

X Q. 471. Do you remember of ascertaining or of being informed at that time that that rawhide leather which you saw at Mr. Heim's place, in New York, was in fact manufactured in San Francisco?

Ans. Well, I am not satisfied in regard to that, but I knew I had, of course, been informed that the Royers were in San Francisco. The place where the leather was manufactured might have been marked on it, but I don't remember.

X Q. 472. You were not informed that Louis Royer was not in San Francisco at that time, were you?

Ans. I wasn't well acquainted with him then, and I don't know.

(The examination of Mr. Coupe was here suspended.)

Testimony of Henry S. Burgess (Recalled by Plaintiffs).

(By Mr. Wheaton:)

Q. 49. Have you finished making the additions which you had commenced when you left the stand the other night?

Ans. Yes, sir.

Q. 50. Will you please give the remainder of the number of hides of fulled rawhide leather manufactured by the defendants as shown by their books from the date that you stopped at when you were last on the stand?

Ans. I wish to say that in the account I have made up I didn't add every side. Some of them have been added once by other par-

ties than myself, and with the assistance of Mr. Gallagher—he called them off and I took them down and then added them up, and I have the summary of that addition. These amounts
210 were put down at the time they were brought in and added up at once. I have not added all of them, and they are not all in my own handwriting, either.

Q. 51. The additions which you have made from these books are your own additions?

Ans. These are; yes, sir. These were called off. Mr. Gallagher called them off to me, and I took them off on a paper and added them up, and he added them after me.

Q. 52. When was that?

Ans. Since Wednesday, since I left the stand.

Q. 53. Do the additions which you have made agree with the additions which you find in the books, so far as the additions in the books extend?

Ans. They were put down and they were added up like that, and he would call them off to me. These were only added up once. We have not added these up since I was on the stand, but they have been added by somebody at some time before.

Q. 54. Commence where you left off Wednesday night and give us the figures from that date forward, beginning, I think, with Jan., 1880.

Ans. Yes, sir; January, 1,337.

Q. 55. Are these sides or hides?

Ans. Sides. February, 1,563; March, 1,621; April, 1,927; May, 1,270; June, 1,711; to July 14th, 637; commencing July 14th, 1,492.

Q. 56. Does that last run from July 15th to August 15th?

Ans. I give the number for one year to July 14th, and then commence right after that for the same year, after July 14th. I stop there and divide that month.

Q. 57. And do not divide the other months?

Ans. No, sir. I commence July 14th, 1,492; August,
211 2,219; September, 2,091; October, 1,542; November, 1,645; December, 2,337; January, 1881, 1,742; February, 2,027; March, 1,597; April, 1,239; May, 1,407; June, 1,667; to July 14th, 968.

From July 14th to the end of the month, 1,466; August, 2,099; September, 2,112; October, 2,475; November, 2,260; December, 2,182; January, 1882, 2,049; February, 1,846; March, 2,558; April, 2,418; May, 2,209; June, 1,814; to July 14th, 922.

From July 14th, 1,487; August, 3,155; September, 2,519; October, 2,473; November, 2,630; December, 1,908; January, 1883, 2,185; February, 2,374; March, 2,674; April, 1,966; May, 2,045; June, 1,886; to July 14th, 671.

From July 14th, 1,015; August, 2,417; September, 1,429; October, 2,191; November, 3,516; December, 2,456; January, 1884, 1,402; February, 2,027; March, 1,719; April, 2,851; May, 1,422; June, 1,741; to July 14th, 990.

From July 14th, 1,128; August, 1,818; September, 1,825; Octo-

ber, 2,698; November, 1,966; December, 1,289; January, 1885, 2,095; February, 1,883; to March 10th, 485.

Testimony of Henry W. Gallagher (Called by Plaintiffs).

(By Mr. WHEATON:)

Q. 1. Did you hear the evidence of the last witness, Mr. Burgess, who has just been on the stand?

Ans. Yes, sir.

Q. 2. You heard him testify that you called off to him from the books of the defendants in this case the number of fulled rawhide sides manufactured by the defendants in each month, ranging over the term of years from 1880 to 1885?

212 Ans. Yes, sir; as I had them on my books.

Q. 3. You called them off to him as he testified, did you?

Ans. Yes, sir.

Q. 4. Did you call them off correctly as the figures in the defendants' books showed them to be?

Ans. Yes, sir.

Q. 5. You are in the defendants' employ, are you?

Ans. Yes, sir.

(Defendants put in evidence drawing of Schultz's machine, and the same is marked Exhibit Schultz's Drawing K and further marked "Admitted as evidence for the court.")

213 BOSTON, *Nov. 8th*, 1886.

Cross-examination of WILLIAM COUPE resumed.

(By Mr. WHEATON:)

X Q. 473. Mr. Coupe, in looking over your patents which have been put in evidence I see the expression used that they are for boarding hides. What does that mean?

Ans. I suppose it means that method of working them back and forth—bending.

X Q. 474. Explain what "boarding" means as the term is commonly used among tanners.

Ans. It means to lay a board upon the hide after it is doubled up and work it back and forth.

X Q. 475. In what position or condition is the hide when it is boarded ordinarily?

Ans. Well, you can board it in most any position. Usually it lays flat on the table; about high enough for a man to work on with ease. He lays his board on and takes hold of one side of the leather, doubles it over—that part that he wants to board—and then carries the board—works it back and forth on it—in that manner (illustrating). The board fits on the man's arm and he grasps it by the handle up here, and a strap goes across here so that he can hold it in that particular position without much exertion.

X Q. 476. Does he lay the hide flat on the table?

Ans. He lays the hide flat on the table.

X Q. 477. Does he double the hide over?

Ans. He doubles the hide over.

X Q. 478. As he boards it does he keep carrying the board over that doubled hide back and forward from one edge to the other?

Ans. Back and forth, like that (illustrating).

214 X Q. 479. He keeps doing that until he works that board all the way through the hide, does he?

Ans. Yes, sir; he will usually go first in one way and then in another.

X Q. 480. Is that boarding operation commonly used for leather which has been tanned?

Ans. It is a common operation to soften any kind of hides that might be required to be soft, leather or hides or anything else. It is a common device.

X Q. 481. What kind of machines were ever used for boarding hides that you know of prior to those that work with a shaft which revolves first one way and then the other?

Ans. None that I know of.

X Q. 482. You had a lawsuit, did you not, with the Schultz Belting Company of St. Louis?

Ans. We did, sir.

X Q. 483. You made a deposition in that case, you recollect?

Ans. I did, sir.

X Q. 484. I find in that deposition (I will ask you if you recollect it) an answer which you made to a question, which answer is in the language following: "Well, we commenced in a very small way. As a rule we have given comparatively little attention to belt-making. The manufacture of lace leather is our hobby, and we pay more attention to that than we do to anything else, merely working belting, as you might say, as a matter of convenience. In 1872 our establishment was burned to the ground; we had to rebuild and to refit, and our trade in the lace-leather line since that time has increased so rapidly that we have been compelled from time to time to put on new additions and increase that branch of the business so much that we have been able to give but comparatively little attention to the belt business. My convictions are that the

215 sales of belting since we started not to exceed $1,500 a month on the average, where our lace-leather sales have reached over $13,000." Do you recollect giving that answer?

Ans. That deposition seems quite familiar to me, sir.

X Q. 485. Well, is this statement contained in this answer, as I have read it, correct?

Ans. I think it is correct, sir.

X Q. 486. For what length of time and when did the sales of your lacing reach $13,000 per month?

Ans. That was the time when we was very extensively engaged in the improved Page patent lace leather and the rawhide lace leather together.

X Q. 487. When did your sales of lace leather fall off from that amount, if they ever did?

Ans. My impression is that the sales of lace leather of all kinds began to decrease somewhere about '83 or '84—somewhere about that time. There was not so much demand in the market for any kind of lace leather then as there was previous. I suppose it was all owing to the stagnation in manufacturing, which created a less demand.

X Q. 488. What proportion of your lace leather has been made under the Page patent in the last, say, three years?

Ans. Well, taking the last three years as a whole, or, say, the last four years, it has been about equal: about, I should judge, one-half tanned leather and the other half rawhide.

X Q. 489. By "tanned leather" do you mean that under the Page patent?

Ans. I mean that that is manufactured under what I called my improved Page patent leather.

X Q. 490. That is, under the Page patent, with your improvement?

Ans. Yes.

X Q. 491. What is the proportion of your sales between
216 those two classes of lace leather in the year 1885?

Ans. Giving a rough estimate, I should think that we might have done about five-eighths rawhide leather and the other three-eighths tanned leather.

X Q. 492. Which cost the most to manufacture, the tanned leather under the Page patent with your improvement or your rawhide lace-leather?

Ans. It cost very much more to manufacture the rawhide leather than it does to make the tanned leather.

X Q. 493. In the same deposition referred to I find this question and answer: "Would the Page patent, strictly followed, without any addition or change, produce good belt leather?" Your answer was: "The Page patent, including the process laid down for currying, would produce a good article of belting, but quite expensive, owing to the large amount of milling it would require, on account of its being so raw, or, in other words, only partially tanned." Do you recollect making that answer?

Ans. I don't remember just at this immediate time, but I have not the least doubt that I did make it.

X Q. 494. What did you mean by the expression in regard to the Page patent "it being quite expensive"?

Ans. Leather manufactured by the old original Page patent was very little different from rawhide, consequently it required a great deal of milling to soften it, which made it expensive to manufacture.

X Q. 495. How do you sell lacing manufactured under the Page patent, with your improvement, to-day as compared with the prices at which you sell the rawhide lacing?

Ans. I think, figured out, there is substantially little difference, only one is based on the price per foot and the other by the pound.

217 X Q. 496. How do you sell the Page patent lacing by the pound?

Ans. We get for leather that weighs less than thirty pounds to the dozen, sixty cents a pound.

X Q. 497. Weighs less than thirty pounds to the dozen sides or hides, do you mean?

Ans. Thirty pounds to the dozen hides; a hide cut into sides.

X Q. 498. That would be two and a half pounds to each side?

Ans. For less than two and a half pounds to a side we get sixty cents a pound.

X Q. 499. If it was just two and a half pounds you would get just $3 for the entire hide, would you not?

Ans. If it weighed thirty pounds to the dozen?

X Q. 500. Yes.

Ans. That is $18 a dozen sides, $36 a dozen hides. Twelve times three is thirty-six. Yes, sir, $3 for the hides.

X Q. 501. How many square feet would there be in each one of those hides that weigh two and a half pounds each side, as near as you can tell?

Ans. There would be from sixteen to eighteen feet in the whole hide.

X Q. 502. How many feet of rawhide lacing would each one of those hides make?

Ans. I suppose they would make the same number of feet of surface measurement as they would tanned leather. It don't really make very much difference whether you work the hide into tanned leather or rawhide.

X Q. 503. At what prices do you sell rawhide lacing made of hides of that size?

Ans. We get 22 cents a square foot net, without any discount. We sell it at 30 cents and the usual trade discounts will average it down to the largest dealers at 22 cents net.

218 X Q. 504. When you spoke of selling the Page patent lace-leather, 30 pounds for a dozen sides, at $3.00 per hide was that $3.00 per hide net to you or was it your selling price from which there was a discount allowed to the dealers?

Ans. 60 cents a pound is net without any discount.

X Q. 505. The prices you have mentioned are the net prices?

Ans. 22 cents per foot for the rawhide is the net price and 60 cents a pound for tanned leather of that weight is the net price.

X Q. 506. Which do you consider the better article of the two, the Page patent lace-leather or the rawhide lace-leather?

Ans. That is a matter of fancy. We have some parties who will use the tanned leather in preference to the rawhide leather and say that it is far superior. Then we have some parties who say that the rawhide is the best. You take it in a woolen mill, they prefer the tanned leather. You take it in a saw-mill, where there is a good deal of wet and moisture, they like the rawhide.

X Q. 507. Do you issue circulars with this clause printed in them?

Ans. Yes, sir.

X Q. 508. "Coupe's patent Excelsior rawhide lace-leather. This is the only genuine article of rawhide lace-leather made in the

United States. It contains no chemicals or tanning of any name or nature. It is a pure rawhide freed from all its impurities and softened by a mechanical process invented and patented by our Mr. Coupe. There cannot be anything better made out of hide. It has now been in use for several years and continues to give universal satisfaction. It is the strongest and most durable lace-leather known."

Ans. I believe, sir, that the Excelsior rawhide, raw leather manufactured——

219 X Q. 509. The question is whether you issued circulars with that statement in it.

Ans. I believe that is correct, sir, to the letter.

X Q. 510. Is this one of your circulars from which I just read that statement?

Ans. Yes, sir; that is one of our circulars.

X Q. 511. While you were selling your patented Page lace-leather to Mr. Heim, of New York, were you in the habit of calling there every one or two months?

Ans. I can't say that I was in the habit of calling there every one or two months, but I was in the habit of calling there at different times.

X Q. 512. Did you find him selling rawhide lace-leather of the Schultz manufacture at the same time that he was still selling your patent Page lace-leather?

Ans. If my memory serves me right I have seen all kinds of all the different brands of leather—hide leather and tanned leather—at Mr. Heim's store at different times. He was quite an extensive dealer and he used to sell any kind of leather that the trade called for. He used to also manufacture for himself.

X Q. 513. Did you not, as early as 1873, find that Mr. Royer's lace-leather was sold by Mr. Heim to such an extent that it made less orders for your patent Page lace-leather?

Ans. No, sir; I can't say that that is the fact.

X Q. 514. Well, is it not a fact that Mr. Heim's orders for your patent Page lace-leather decreased in a month after he commenced selling Mr. Royer's lace-leather, as early as 1873?

Ans. No, sir; I don't think that it had any effect on it
220 whatever, for at that time I considered our patent lace-leather the very best article there was in the market. It was better then than the Royer leather. There was a number of parties who found fault with the Royer leather on account of its harshness. When you cut a string off of the leather it was so harsh that it left a sharp corner on the edge, and that sharp corner used to cut away the belt, and on that account there was a great many people that wouldn't use it.

X Q. 515. Did you ever see that done yourself?

Ans. Well, I have never seen it actually cut right off, but I have seen the effects of the sharp corner on all kinds of lace-leather.

X Q. 516. Are you not a little mistaken in including Mr. Royer's lace-leather in all the other kinds with respect to its having harsh corners?

Ans. No, sir; I am not mistaken.

X Q. 517. Now, from 1872 to '75 did you not find Mr. Royer's lace-leather coming in competition with yours in the establishments which I will call off to you: B. B. & R. Knight's, in Providence, R. I., and elsewhere; at Hampden mills, in Holyoke, Mass.; Pemberton mills, in Lawrence, Mass.; Boot mills, in Lowell, Mass.; Methuen Company of Methuen, Mass.; Lawrence Duck Company of Lawrence, Mass., and the Pacific mills, of Lawrence?

Ans. Those are all consumers of lace-leather, and, to the best of my knowledge, we have never sold any of those firms a single side of lace-leather, either of rawhide or tanned leather.

X Q. 518. Well, have they not been in the habit, more or less of them, of using your patent Page lace-leather obtained from the merchants or dealers who purchased from you?

Ans. That, sir, is beyond my knowledge. What they might have obtained of the dealers that we sold to I know nothing
221 about, but the parties never bought, any of them, directly from us.

X Q. 519. How did your average monthly sales in the year 1885 compare with your average monthly sales, say, in 1877 of lace-leather of both kinds?

Ans. Well, I can't say exactly. I should not be able to answer that question satisfactorily without referring to the books. I suppose they are here and they could be examined if necessary upon that point.

X Q. 520. Well, you have a general recollection, have you not, of what your monthly or yearly sales were of lace-leather about 1877?

Ans. Well, I might guess, but it would not be satisfactory to myself to do so, because I don't think it would convey any accurate idea.

X Q. 521. Well, give us a general idea of it.

Ans. I cannot answer that question, sir, in any other way.

X Q. 522. In speaking of your surface-tanned rawhide driving belts in this circular referred to I find that you use this expression: "We are licensed to manufacture belting under Schultz's patent and can supply that article at a reduced price when required, which we guarantee to be first class in every respect." Is this statement correct?

Ans. Yes, sir; we have a license to manufacture under Schultz's patent.

X Q. 523. What do you manufacture under that patent, anything but belting?

Ans. We do not manufacture under it at all, but we have a license to do so.

X Q. 524. In the manufacture of that belting, are these rawhide machines used?

Ans. Not this style of machine in question.

X Q. 525. Is there a machine used in which there is a central shaft that runs back and forth, winding up the hide entirely
222 around the shaft in one direction and then rewinding it in the opposite direction?

Ans. Yes, sir; there is a machine of that description used.

X Q. 526. It is just as necessary to break and soften the inside of the belting as it is to soften the rawhide lacing, is it not?

Ans. Not necessarily so; no, sir. That belting could substantially be made without softening.

X Q. 527. In dealing with Mr. Schultz did you learn what kind of rawhide machines he was using?

Ans. I have had no particular knowledge of the style of machine that Mr. Schultz is using any further than what I could obtain from a drawing. I have never been to Mr. Schultz's works and have never seen any of his working machines.

X Q. 528. To what drawing do you refer?

Ans. The drawing of the patent which usually accompanies a patent.

X Q. 529. You have seen his patent, then?

Ans. Yes, sir; I think I have. I don't remember just exactly what it claims.

X Q. 530. Please look at this and see whether it is a Patent Office copy of the specifications and drawings of the patent you refer to.

Ans. That is like the one that I saw.

X Q. 531. Do you find in that a central revolving shaft to which the hides are fastened and wound first in one direction and then in the other?

Ans. Yes, sir. I see a central revolving shaft.

X Q. 532. Is it in a horizontal position?

Ans. In a horizontal position.

X Q. 533. That patent is some two years or more ahead of your first one, is it not?

223 Ans. This patent is dated April 19, 1876. Mine, if I remember right, is some time in '78.

X Q. 534. Then Mr. Shultz was using a horizontal revolving shaft long before you made your machine, was he not?

Ans. He must have been, sir, according to this patent, but I had no knowledge of it whatever.

X Q. 535. But you had knowledge, did you not, that he, Mr. Schultz, was the same one that learned the manufacture of rawhides from Louis Royer in St. Louis?

Ans. To the best of my knowledge I never knew anything about Louis Royer or the Schultz Belting Company until after I had been operating my machine.

X Q. 536. Coming back to Mr. Heim, how soon did you see any of Eckfelt & Ritchie's rawhide lacing which they had manufactured at Philadelphia at Mr. Heim's place?

Ans. I don't remember ever seeing any of Eckfelt & Ritchie's manufacture at Mr. Heim's place.

X Q. 537. I just understood you to say that you had seen all of the different kinds of lacing that Mr. Heim sold.

Ans. What I meant then was rawhide leather, tanned leather, and what you call tawed leather.

X Q. 538. (Question read.) You will see the question calls for Eckfelt & Ritchie's rawhide lacing.

Ans. I say that I never saw any of Eckfelt & Ritchie's manufacture of rawhide leather at Mr. Antoine Heim's, in the city of New York.

X Q. 539. Eckfelt & Ritchie were the parties who had the Louis Royer machine which you testified to seeing at Philadelphia, were they not?

Ans. Eckfelt & Ritchie was the party who put the improved Louis Royer machine in and threw it out because it was useless to them or they couldn't make it operate so as to make any money on it.

224 X Q. 540. Was that the machine which you saw at Wetherhead & Thompson's?

Ans. No, sir; if my memory serves me right, the machine at Wetherhead & Thompson's is an improved machine.

X Q. 541. Well, is it not the Louis Royer improved machine as you call it?

Ans. The machine that Louis Royer made and put into Eckfelt & Ritchie's, in Philadelphia, if I remember right, had some difference in it from the machine that Louis Royer put into Wetherhead & Thompson's, or they themselves might have made the change on it. I don't know whether Louis did or not.

X Q. 542. Tell us generally what that difference was.

Ans. Well, I am under the impression—I don't state this as an absolute fact—I am under the impression that the screw in the Louis Royer machine that was put into Eckfelt & Ritchie's, in Philadelphia, projected some above the shaft, although I may be mistaken. I don't state that as an absolute fact, but I am under the impression that that was the case.

X Q. 543. When did you see that one at work in Philadelphia, as near as you can fix the date?

Ans. I could not say just exactly when I saw the machine.

X Q. 544. Did they not cease working that in the Centennial year, 1876?

Ans. That I could not say.

X Q. 545. It must have been before they ceased working it, of course, that you saw it work, must it not?

Ans. That would be a natural supposition.

X Q. 546. When you first saw Herman Royer's lacing at Mr. Heim's did you not cut off a piece from it, put it in your mouth and chew it, and express the opinion that it was no good; that it would soon turn back to gelatine?

225 Ans. I don't believe that I ever made such an expression.

X Q. 547. Was not that your opinion when you first saw it and tried it?

Ans. I could not tell what my opinion was when I first saw it, but I don't believe that I ever made such an expression.

X Q. 548. Did you cut off and carry away a piece to have it chemically tested, as you stated at the time?

Ans. I could not swear whether I did or not. I don't think I did, for the reason that I never had any chemical test made of it.

It is very natural for me to chop off a piece of leather anywhere I see it, in one place or another.

X Q. 549. As near as you can fix it, how long before you commenced making your machines in 1877 or 1878 was it that you first saw Herman Royer's rawhide lacing at Mr. Heim's?

Ans. I could not fix the time exactly.

X Q. 550. The question says "as near as you can fix it."

Ans. Well, sir, it was so long ago that it would be impossible for me to do so.

X Q. 551. Where was the first piece of this kind of rawhide leather that you ever saw?

Ans. Do you mean of rawhide or of the Herman Royer rawhide?

X Q. 552. I mean what you are now calling rawhide-leather lacing, either of Herman Royer's or Louis Royer's or any one else's.

Ans. My impression is that the first I ever saw was what I made myself immediately after I started business, in 1865 or 1866. When I was in England, in the winter of 1865, I visited a large number of large manufacturing establishments in Manchester. While there I had an opportunity to see the various kinds of lacing
226 that were being used, and amongst the rest I saw some lacings that were made out of hides similar to our hides before they are softened. The way they had of using those lacings—of course, they were hard and rigid—the way they had of using them was to wet them in water, and when they got sufficiently damp to leave them in a limp condition; then they sewed the belt with them. The idea at that time struck me that if that leather could be made soft and pliable and made so that it could retain its soft, pliable nature it would be just the thing the trade required, and from that day forward I made up my mind that if ever I got an opportunity I should try the experiment. After starting business myself I tried it.

X Q. 553. Where was the first place in which you saw any of this rawhide lacing which had been softened by machinery and stuffed with a stuffing which contained tar as one of its ingredients?

Ans. It would be impossible for me to answer that question.

X Q. 554. Why?

Ans. Because tar might be put into the stuffing in such small quantities that it would hardly be observed.

X Q. 555. Where was the first place that you saw any of this rawhide lacing which had been softened by mechanical manipulations and stuffed with a stuffing containing tar in such quantities that it was very perceptible?

Ans. That, sir, I could not answer. During thirty years' experience in leather there is a great deal from one time to another that has come under my observation, and I don't remember, of course, just the exact time when they did come.

X Q. 556. Where was the first place where you saw such lacing, in which the lacing attracted your attention sufficiently so that you now remember it?

Ans. The first time I ever saw any lacing, I think, that
227 attracted my attention as having a stuffing containing some

tar was at Mr. Heim's. It was an article of leather that he had imported from Germany. It wasn't what you could call either rawhide or tanned leather, but I should judge that there was more rawhide to it than there was tanned leather.

X Q. 557. Had it been softened by mechanical manipulations?

Ans. I should judge from the general appearance of it that it had been softened in a drum, because it had a corrugated surface, which indicated that.

X Q. 558. Are you not perfectly well aware that the first article of that kind that you ever saw was at Mr. Heim's and that it was Herman Royer's leather?

Ans. Sir?

X Q. 559. Are you not perfectly well aware that the first rawhide leather, as it is now called, which you ever saw was that in which the rawhide had not been tanned at all, but had been softened by mechanical manipulations and contained a stuffing which contained a perceptible amount of tar in it, was the rawhide lacing of Herman Royer which you first saw at Mr. Heim's?

Ans. If Mr. Wheaton will give me the question in a condensed form so I can get at just exactly what he wants I will answer the question. Do you want to know if the first rawhide lace leather that I ever saw that had tar in it was Mr. Royer's?

X Q. 560. The first rawhide lacing you ever saw which contained a tar stuffing—in other words, the same kind of rawhide lacing which you and Mr. Royer are now manufacturing—whether that was not one which you saw at Mr. Heim's and if that was not of Herman Royer's manufacture.

Ans. Your question is not clear to me; I cannot answer it until I get it perfectly clear.

(Counsel for defendant objects to the question on the ground that it is going into the matter of the tar patent, which he under-
228 stands to have been ruled out heretofore.)

X Q. 561. You do know that you saw Herman Royer's lace leather at Mr. Heim's a considerable time before you commenced making your patented machine?

Ans. I saw Herman Royer's lace leather there; it is not just fresh in my mind now when I did see it there.

X Q. 562. You know it was prior to 1877, do you not?

Ans. No, sir; I couldn't swear to that.

X Q. 563. Was it prior to the time that you commenced making your machine?

Ans. I could not swear that it was; it might have been.

X Q. 564. Do you undertake to say that the idea of making a machine for manufacturing this kind of rawhide containing tar stuffing which you, in fact, had never seen in the world was an original idea with you in 1877?

(Counsel for defendant objects to the question as one involving the matter of tar stuffing and as not pertinent.)

X Q. 565. Do you remember what led you to the idea of making your machine in 1877?

Ans. I do, sir.

X Q. 566. What was it?

Ans. To get an improved machine to do the work.

X Q. 567. Why do you use the words "improved machine"?

Ans. Because the fulling machine wouldn't do it quite fast enough for us; it took a little too long; we wanted something that would grind it up a little faster.

X Q. 568. What is the inside diameter of your rawhide cribs?

Ans. Well, when they are shut up I should think they would be sixteen inches in diameter, but when the bars are extended they might be seventeen or eighteen.

229 X Q. 569. How heavy was the weight which you used in the Royer machine which you made?

Ans. I didn't weigh it, but to look at it I should think it would weigh somewhere about 120 or 125 pounds.

X Q. 570. In looking over your testimony as you gave it the other day there seems to be an inconsistency as to the number of machines. Let me call your attention to it. You said that in 1884 you had two 4-crib machines, making eight cribs; two 8-crib machines, making sixteen more cribs, and two 6-crib machines, making twelve cribs, and a one-crib machine, which you called the Elephant. Is that correct, in the year 1884?

Ans. Yes, sir; we had that number of machines.

X Q. 571. I next inquired about the year 1883, which was the year prior, and you stated then that you had the same as in 1884 and twelve additional cribs—that is, machines enough to make twelve additional cribs; that you had made some improvement in 1883 by which you took out these twelve, and still could do the same amount of work. Was that correct?

Ans. Yes, sir; we had eleven machines altogether then, and we took out four of them.

X Q. 572. If that is the case, you had thirty-seven cribs, including the Elephant, in 1884, and if you had twenty-four in addition to that in 1883 that would make sixty-one cribs altogether in 1883?

Ans. Yes, sir.

X Q. 573. You have stated generally that you had thirty-nine in 1883; that figure, thirty-nine, must have been a mistake?

Ans. I might have made a mistake in footing up the number.

X Q. 574. The number you had in 1883 was really sixty-one, was it not?

Ans. We had that number, ten machines. We had six
230 6-crib machines, two 8-crib machines, and two 4-crib machines and one 1-crib machine. We had eleven machines altogether.

X Q. 575. How many hides per day or how many square feet would this Elephant machine you speak of work?

Ans. Well, we use that for softening very heavy hides. We put in from 25 to 30, according to the size of the hides.

X Q. 576. About how many square feet would that average?

Ans. Those hides would average fifty square feet to the hide.

X Q. 577. How many hides of that kind would that Elephant machine work per day?

Ans. I don't think you could complete the process in one day. If we filled the machine up we should have to let them run until they softened.

X Q. 578. What would the average be per day in square feet, suppose you ran it a week and get out as many charges from it as you could put through it?

Ans. It might take two days to soften a crib full. We couldn't take any of them out before they were all soft, of course. If the machine held thirty hides and they averaged fifty feet to the hide, that would make 1,500 feet that you had in the machine; and if it took two days to soften them you might infer on that basis that it would have taken one day to have softened half the number of feet. But, substantially, 750 feet would not be softened until the second day, when the 1,500 feet would be softened.

X Q. 579. You simply mean it would soften 1,500 feet in two days?

Ans. Yes, sir. I don't limit it to just exactly any specific time, as a great deal depends upon the condition of the hides. Some hides will take longer and some shorter, according to the texture of
231 the hide and according to the way they are worked through the different processes previous to coming to the machines.

X Q. 580. Would that Elephant machine or crib hold 1,500 feet of heavy hides?

Ans. Yes, sir. It is an immense machine. It weighs about twelve or thirteen tons.

X Q. 581. How much of the time did you keep that running?

Ans. Well, we keep that running pretty steady.

X Q. 582. How many feet for each crib per day would they average, month in and month out, as you had worked them for the last five or six years?

Ans. Well, we haven't worked them month in and month out. If we were to work them steady, right straight along, ten hours a day, and the hides were to be all right, we could take out about 600 feet a day out of a 6-crib machine, but there is a part of the time that the cribs don't run.

X Q. 583. For the six years last past before the commencement of this suit what proportion of the time did your machine average to run?

Ans. It would be impossible for me to state, sir, what proportion of the time they have averaged, but I have given you an outline of the capacity of the machines, what they would be capable of doing in ten hours.

X Q. 584. Did they run more or less than half the time?

Ans. I couldn't say whether they did or did not. I say the capacity of one of those cribs, if it is run ten hours a day, is 100 feet.

X Q. 585. You know something about your own business, do you not? You can tell whether these machines average to run more or less than half the time, can't you?

Ans. I say it would be impossible for me to make any such statement as that. I have given you in that memorandum the number of feet of hides we have done, and I tell you what the ma-
232 chines are capable of doing under reasonable circumstances.

X Q. 586. What made you build so many machines if you weren't running them half the time?

Ans. Very often a man makes an invention, and by this invention it takes a certain length of time to produce a given quantity of stock. He goes to work and he makes an improvement on the invention, and he finds by the improvement, no matter what it may be, that he can produce a given quantity of stock in less time; consequently he does not require so much machinery to do the work he was doing before he made the improvement that he has made.

X Q. 587. That was your reason for taking out twenty-four cribs in 1883?

Ans. That was certainly the reason, sir.

X Q. 588. But I do not have reference to those you took out and were not running at all. What proportion of the time, as near as you can fix it, counting ten hours for each day other than Sundays, did your machines which you did have working run?

Ans. That is a mathematical calculation, as you told me the other day. Now, I give you the quantity of hides and the number of square feet that we did in such a time. You figure it out, taking the capacity of each crib as 100 feet a day for ten hours' running, and you can get at it to a nicety. But I can't tell you whether this machine was idle a day or the other one was idle a day or this one was running two hours or the other one was running two hours. It is impossible for me to state.

X Q. 589. Can't you state whether your machine would average to run three days in a week or not?

Ans. I couldn't tell you anything about it, sir; it is impossible. I am not there every minute in the day.

X Q. 590. Did you have men regularly employed to attend
233 those machines?

Ans. We had men regularly employed, sir.

X Q. 591. Did you have men whose business it is especially to attend those machines?

Ans. We have men for that especial purpose.

X Q. 592. Have you any more men for that especial purpose than is necessary to attend all of the machines?

Ans. Sometimes we are a little short of help. We are supposed to have a sufficient number of men to attend to all the machines, but if we happen to run across a lot of hides that were working easy, that were soft and uniform comparatively, which would break up very much faster than others and require to be taken out, then we might be short of help.

X Q. 593. Is it a fact that you have kept men enough employed to run those machines all the while, paid them for their full time in doing it, and yet do not know whether the machines ran even half the time or not?

Ans. We utilize our men in our factory. If they haven't sufficient employment in one department we can send them to another, and if we had one or two machines stop for any cause or other, for lack of hides or because we didn't want the product, we should very likely take those men and put them in some other department or let them go home.

X Q. 594. Well, has half of the time of those men you have employed for this especial purpose been taken up in other employment or at home?

Ans. I couldn't answer that question, sir; not accurately or definitely.

X Q. 595. In your direct examination you stated that the Royer patent said the hides were put one on top of another, and that was the reason you put them so in the Royer machine which
234 you made. Were you not mistaken in saying the patent said anything about that?

Ans. In reference to that matter, if you will let me have the patent I will try and give a representation of what I meant. The court will notice that there are four set-screws in this upright shaft, and they were to attach one hide there. There are two set-screws shown in the patent drawing, but the specification calls for four. If one hide is put down here—we will concede that there are only two as the drawing shows it—if one hide is put down here and the other is put over it, that one is put on top of it or above it.

X Q. 596. Where does the patent say anything of that kind?

Ans. I imply that from the position of the vertical shaft.

X Q. 597. Your statement was that the patent said that.

Ans. Well, it says it on the draught. It may not say it in language, but it says it on the draught. This vertical shaft, of course, calls for four set-screws B B B B in the specification, and you would naturally infer that four were used, although two only are shown on the draught.

X Q. 598. The question of your counsel is as follows:

"Q. 101. Now, in a word, Mr. Coupe, for I wish to take no more time than is necessary, you put the hides in, one on top of the other, into that slit and pinched these screws up against them. Is that correct? Ans. That is correct, sir.

Q. 102. That is the description in the patent, as I understood you to say. Is that correct? Ans. That is the description in the patent."

Now, will you point out where the patent says one word about putting in any more than one hide in any way, shape, or form?

Ans. I have given you my view of the matter, and it would be absolute stupidness for any man with reasonable mechanical
235 common sense to say that you would put four set-screws into that shaft when you were only required to put in one hide; that only requires one set-screw. It implies it right on the face of it, and the language of the draught is what I have set forth.

X Q. 599. Does that begin to include any such absolute want of any mechanical sense and such stupidity as that of making the set-

screws a quarter of an inch too long to prevent the weight from going down as you did make them?

Ans. We will show you that later.

X Q. 600. That is what the patent says: "The end of the rawhide, after it has been deprived of the hair, is introduced into the slot B', and the set-screws B B B turned against it, when motion is imparted to the machine, and the hide is wound tightly around the vertical shaft." Now, does not that state that one hide is fastened with three set-screws, as you understand the English language?

Ans. I say, sir, it is an impossibility to turn these four set-screws against one hide. You can't do it. These four set-screws in that machine have a purpose to serve, and that purpose is to attach more hides than one. That would be implied from the reading of the patent.

X Q. 601. What part of the patent would that be implied from? Just point it out.

Ans. From the general reading of it all through.

X Q. 602. Just read the part of it which would imply that one hide could not be fastened with three set-screws, or any part of it that implies that any more than one hide was to be treated at a time.

Ans. "The operation of our machine is as follows: The end of the rawhide, after it has been deprived of the hair, is in-
236 troduced into the slot B' and the set-screws B B B turned against it."

X Q. 603. Does that speak of any more than one hide?

Ans. No, sir; it does not; but I will defy you, sir, to put one rawhide into that machine and catch it with the four set-screws, so that it will be softened in the practical way in which it is designed to be softened by this machine.

Redirect examination.

(By Mr. THURSTON:)

Q. 604. Your attention was drawn to the Schultz patent, and you identified the patent. That is the paper shown you, I think, Mr. Coupe?

Ans. I think that is the paper.

(Defendant puts in evidence copy of the specification and drawings of the letters patent granted to J. A. J. Schultz for leather stuffing and fulling machine, numbered 177,576, dated May 16, 1876, and the same is marked Exhibit L.)

(It is stipulated that all the copies of specifications and drawings which have been put in evidence are correct Patent Office copies of the specifications and drawings of patents which were actually granted according to the dates and headings shown upon each one of the respective specifications and drawings.)

Q. 605. Do you remember whether the machine that you saw at Eckfelt & Ritchie's, to which your attention was drawn, and concerning which you stated it was a Louis Royer improved machine, did or did not have a lever connected with the weight?

Ans. It had a lever connected with the weight, sir.

Q. 606. Referring also to the Wetherhead & Thompson machines, which, as I understand, are also Louis Royer machines, had such machines, when you saw them, a lever attached to the weight so as to control it?

Ans. They had, sir.

237 Q. 607. Describe that lever, its length and its adjustment, so we can have an idea of the machine with that attachment.

Ans. I should think that lever was about ten feet long. It was fastened to a fulcrum out here—just the exact distance from the weight I could not say—and then it bore upon the weight here and extended out here. Attached to this end here was a tackle to pull this lever down, and, if I remember correctly, there was a rope attached to this lever overhead to pull the lever up; that is a representation of it as near as I can give it.

Q. 608. Do you remember how the weight was connected with the lever?

Ans. I don't just exactly remember. I wouldn't swear, but my impression was it was some kind of a swivel.

(By Mr. WHEATON:)

Q. 609. The patent says, in regard to the iron weight in operating the machine, "by pressing upon this weight." Would not this lever you speak of be a very natural way, which any mechanic would know how to adopt, of pressing upon the weight?

Ans. It was not the natural way that I applied pressure to mine. One man might construe a thing one way and another man might construe it another way. It is a very crude idea, I call it, and the man that makes it has a limited inventive capacity.

(By Mr. THURSTON:)

Q. 610. In the model that is before you (Exhibit 2) there is a strip of hide, intended to represent the hide of an animal, I suppose; the form of that strip of leather does not correspond at all with the general form of a side of leather?

Ans. That would convey a very incorrect idea to anybody who knew nothing about the machine, and a man that was a practical man and saw that under these circumstances would say at once that that was put there for the especial purpose of deceiving

238 the jury; that would be his conclusion, because these rigid rawhides, when they are run into this crib, are run in there in a wrinkled condition and don't represent anything like that piece of leather at all. It is a different thing from running a hide, we will say, for instance, of that same material, eight feet long and six or seven feet wide, in its hard, stiff, comparatively unyielding state, into a crib of this kind, than it is just turning in this soft piece of leather, which shows an upright position all the time. You will bear in mind that in softening this leather, gentlemen, when you put these rawhides in there, you have got an immense pressure to give against, and the hide goes in there all rumpled up and oc-

cupies a different position entirely from what is represented by this piece of leather in this model.

(By Mr. WHEATON:)

Q. 611. Any more difference between that piece of soft leather now in the machine and that hard rawhide than there was between your pocket handkerchief, which you used the other day in your lengthy illustration, and that same hard rawhide, to show how limp a rawhide would hang down when first put in?

Ans. I could have taken this hard piece of rawhide and put it on the top and drawn the attention of the jury to it, which would have impressed their minds very much more because they could have seen then the two different states of the hide.

Q. 612. Could you take that piece of rawhide and put it in the machine and make it rope up as you made your handkerchief rope?

Ans. Not until it has become soft and limp; it is impossible.

(By Mr. THURSTON:)

Q. 613. When it has become soft and limp, as you express
239 it, what is then its condition as compared with its apparent condition in structure as we see it in the rawhide?

Ans. Do you mean in regard to its peculiar form or shape?

Q. 614. With reference to its condition with respect to limpness. In other words, if you can, describe how the piece of hide on the desk before you compares, in its present condition, with what its condition would be after it had become softened.

Ans. The condition would be more that of my handkerchief than it would be of this piece of leather; very much more.

(Counsel for defendants puts in evidence letters patent to Charles L. Royer, of San Francisco, for improvement in apparatus for treating hides, dated Feb. 8th, 1876, No. 173,346, and the same is marked Exhibit M.)

(Counsel for defendants offers in evidence letters patent to Herman Royer for an improvement upon the patent in suit, dated June 22, 1869, No. 91772. Counsel for plaintiff objects to the admission of the patent on the ground that it is subsequent to the patent in suit, and consequently cannot be an anticipation or qualification of it; that it does not contain any of the improvements which are commonly applied to any of these machines; that it is entirely incompetent and irrelevant. Counsel for defendant offers it as a declaration under oath by Herman Royer that a twisting machine like that which he described, which gave him the suggestion from the Russian manufacture, was an improvement, as stated in express terms, upon the patent in suit, and as bearing directly upon the true interpretation of the patent; as a part of the *res gestæ*.

Excluded.

Exception taken by counsel for defendant.)

Q. 615. Was the Wetherhead & Thompson machine like that shown in the Louis Royer patent?

Ans. Yes; I should think that is substantially the Wetherhead

and Thompson machine—that is, the crib part of it, without any of the underneath gearing or the lever shown above.

Q. 616. With this exception it is the machine?

Ans. Yes, sir.

240 (Counsel for defendants offers the patent No. 91772, dated June 22nd, 1869, to Herman Royer, to contradict the testimony of Herman Royer, to the extent it is a statement by him under oath of the characteristics of the patent in suit.

Objected to. Admitted. Exception saved by counsel for plaintiff.

Paper put in evidence and marked Exhibit N.)

Testimony of Joseph H. Lee.

(By Mr. Thurston:)

Q. 1. Where do you reside?

Ans. I reside in Providence, R. I.

Q. 2. Where are you employed?

Ans. At the Franklin Machine Company, formerly the Franklin Foundry and Machine Company's works.

Q. 3. In what capacity?

Ans. As superintendent.

Q. 4. How long have you been such?

Ans. A little over three years.

Q. 5. How long have you been in the employ of that company?

Ans. Between six and seven years.

Q. 6. Do you know William Coupe?

Ans. Yes, sir; I do.

Q. 7. Within a comparatively recent period did he come to you to have any work done? If so, state fully to the court and the jury what he desired to have you do and all the directions that he gave concerning the making of the thing that he wished to have made.

Ans. In October, 1885, Mr. William Coupe came into my office with a copy of a specification and a drawing from the Patent Office and requested me to make a working machine as near the drawing as I possibly could. That is all the explanation I got about making it.

241 Q. 8. Did you proceed to do that work?

Ans. I did.

Q. 9. Was Mr. Coupe at any time present while the work was going on?

Ans. No, sir.

Q. 10. Did you know what he wanted the machine for?

Ans. No, sir.

Q. 11. Did he explain to you anything in connection with the use to which he wanted to put that machine?

Ans. No, sir.

Q. 12. Please look at the paper now shown to you, being "Ex. 1" in this cause, and state whether the specification and drawing and the letters patent accompanying the same correspond with the

printed paper and drawings which he handed to you for the purpose of making a machine to represent the thing described in such patent.

Ans. I should say the drawing and specification were identically the same.

Q. 13. State what you did in execution of that order given by Mr. Coupe.

Ans. I went to work to make the machine, and in making it I thought it was impracticable, so I called Mr. Coupe's attention to it through the telephone and he answered me in this way: "You go to work with the drawing and specification and make that machine as near it as you possibly can." That is the answer I got.

Q. 14. Mr. Coupe resides in Attleboro', does he not?

Ans. Yes, sir.

Q. 15. You called him by telephone from Providence?

Ans. Yes, sir.

Q. 16. And such conversation as you had was over the wire?

Ans. Yes, sir.

242 Q. 17. What was done with the machine after you finished it?

Ans. Set up in my shop just to run and see if the mechanism was all right.

Q. 18. When you satisfied yourself in that regard, what became of the machine?

Ans. I notified Mr. Coupe and he took it.

Q. 19. Did he come himself, or send for it?

Ans. He sent for it.

Q. 20. Have you seen Mr. Coupe from that time to this?

Ans. Not until this morning.

Q. 21. When were you first notified to appear as a witness?

Ans. Yesterday.

Q. 22. You state distinctly that you never have had any conversation with Mr. Coupe in regard to this machine beyond what you have stated to this jury; is that correct?

Ans. None whatever.

Q. 23. (Showing model of plaintiffs' machine.) Have you ever seen this model before that I now show you?

Ans. No, sir.

Q. 24. State whether this does correspond, as far as you are able to determine, with the machine which you made, and whether it is or is not, in your best opinion, a correct model of such machine.

Ans. It looks to be exactly the same with the addition of the wrench. I did not furnish any wrench.

Q. 25. That is, this hand wrench?

Ans. Yes, sir, this socket wrench.

Cross-examination.

(By Mr. Wheaton:)

X Q. 26. Who besides Mr. Coupe talked with you about that machine?

Ans. Nobody.

X Q. 27. You say you made it as near like the drawings in "Ex. 1" as possible?

Ans. Yes, sir.

243 X Q. 28. And you think that model is an exact model of the machine that you made?

Ans. No, sir; I do not. I think it is better than the model.

X Q. 29. What?

Ans. I think it is better than the drawing.

X Q. 30. Well, this is a model in all its working parts, in all its devices; is that what you mean—the practical operation, the working of it?

Ans. That is what I have reference to.

X Q. 31. You think the practical working and operation of this model is better than the machine you made for Mr. Coupe?

Ans. No, sir; I do not. I consider the machine I made for Mr. Coupe is a better machine than the drawing called for.

X Q. 32. I was asking you to compare that machine with the model.

Ans. Compare this model with the machine I built?

X Q. 33. Yes.

Ans. It is just exactly the same, as near as I can see, with the exception of the addition of that wrench.

X Q. 34. The drawings only show two set-screws in the vertical shaft. Why did you put in four if you were making it as near like the drawing as you could?

Ans. Because I believe the specification called for four.

X Q. 35. Then you did not make it according to the drawing alone, but according to the specification and the drawings?

Ans. Yes, sir.

X Q. 36. Why did you make the set-screws so much longer in proportion than the set-screws appear to be in the drawings of the exhibit?

Ans. I made them as near as I could calculate from the exhibit.

X Q. 37. Did you make them so that when they were screwed all the way in until the point struck the opposite side of the slot

244 or the shaft the heads would project a quarter of an inch or more?

Ans. Somewhere in that neighborhood; I do not exactly remember the part of an inch.

X Q. 38. Did you find any such proportion as that in the drawings?

Ans. As far as I could see.

X Q. 39. Look at the drawing in "Ex. 1;" how far do the heads of the screws project outside of the shaft?

Ans. Well, it would be about the same as mine does.

X Q. 40. Or, in other words, about the same as this model does. How far do the points reach into the shaft?

Ans. They do not reach in far enough to take a piece of leather.

X Q. 41. They do not?

Ans. No, sir.

X Q. 42. According to the drawings could those set-screws be screwed into the shaft until the points would reach the opposite side of the slot without countersinking into the shaft to give room for the heads to go in?

Ans. Not in the drawing; no, sir.

X Q. 43. In the model of the machine that you made can the set-screws be screwed in until the points will reach the opposite side of the slot without countersinking to let the heads go into the shaft?

Ans. I do not understand that. You want to know if the set-screws can be put into the other side of the slot without the heads being countersunk?

X Q. 44. No; I mean can they be screwed into the shaft just as they are now until the point will strike the further side of the slot. Do they not go in there and still the heads project on the other side of the slot?

Ans. Yes, sir.

X Q. 45. Then in *the* respect the length of the set-screws in the machine does not compare with the set-screws in the model?

Ans. No, sir.

245 X Q. 46. Why was that difference made?

Ans. Because I could not see the use of a machine with screws made to hold leather without the screws reached across far enough to take it.

X Q. 47. Did you know that if the heads project on the outside of the shaft that would interfere with the working of the machine?

Ans. I never thought of that matter until this moment.

X Q. 48. Do you know anything about that?

Ans. About what?

X Q. 49. That if the heads project on the outside of the shaft when the screws were put in to hold the leather that the projection of the heads would interfere with the working of the machine?

Ans. No, sir; I did not. I never thought of it until this moment.

X Q. 50. Then the idea of making the set-screws so long was an idea of your own?

Ans. No, sir; the idea of making the set-screws—the only place I lengthened the set-screws was in the interest of retaining the leather. Your drawing calls for a head outside of the shaft with no countersink in there to receive the head.

X Q. 51. How do you know there is no countersink?

Ans. Because it there were there would be a dotted line to show it on the background.

X Q. 52. How did you expect those screws were going to be put in far enough to pin the leather to the further side of the slot without lengthening the screws unless you did countersink them?

Ans. Lengthen them on the point the same as I did. I thought if a man had made drawings and left the heads out there it would not hurt if mine came out. If it had shown a dotted line there

around the head there probably should have been a countersink there.

246 X Q. 53. As a mechanic, if you had known that it was necessary for these screws to go in far enough to hold a thin hide against the further side of the slot and at the same time that the heads must not project on the outside of the shaft, how would you have managed to effect that result without lengthening the screws?

Ans. Do you mean to say if I had understood that the head ought to go in out of the way?

X Q. 54. If you had understood that the heads ought not to project out of the shaft and at the same time had understood that the screws must go so far across that slot that they would pin a hide against the further side of the slot, how would you have effected that result?

Ans. I probably should have put in a larger screw; put in a larger hole in it and made a wrench to fit the hole.

X Q. 55. How would that get rid of the screw?

Ans. It would not; but it would get rid of the head, the countersink, but it would weaken the shaft very much.

X Q. 56. What would you want to put in a larger screw for?

Ans. So as to admit of getting a wrench inside.

X Q. 57. Would it not be just as natural to countersink it?

Ans. No, sir; because we should have to put in a larger hole to receive the outside of the wrench than we would to receive the screw.

X Q. 58. Suppose you had a slot in the head of the screw, the same as ordinary screws, screws that are in ordinary use?

Ans. From what experience I have had I do not believe a man could make a screw-driver that would screw it up tight enough to hold.

X Q. 59. Have you had any experience in the matter of 247 holding leather in such a machine?

Ans. Yes, sir.

X Q. 60. Where?

Ans. At Coupe & Company's.

X Q. 61. How came you to go there for experience of that kind?

Ans. I have altered the machines for him to quicken the speed. I have changed the gears on three machines.

X Q. 62. In those machines of Mr. Coupe's that you saw how were the screw-heads with regard to being flush with the shaft or extending beyond it?

Ans. I cannot exactly say about those screw-heads.

X Q. 63. What?

Ans. I cannot say exactly about those screw-heads. I do not know as I paid any attention to them. I never had anything to do with that part of the machine before.

X Q. 64. How is it fixed in the defendants' machine? How are those there? Are not those screws fixed with a slot in the head?

Ans. Yes, sir.

X Q. 65. Then, from your experience with Mr. Coupe's machines—

and he swears that is a correct model—is it not a fact that he must have had a screw-driver that was strong enough to screw the screws in tight enough to hold the hides?

Ans. If my memory serves me right, he holds his hides in a different way than in this machine. This is held by friction.

X Q. 66. How is his held differently?

Ans. He cuts a hole in the leather and puts a screw through the hole and has the strength of the leather, and then he uses a washer, which brings a larger surface in contact with the hide and gives a great deal more friction than there is in using one of these screws.

X Q. 67. You say you are a mechanic?

Ans. Yes, sir; I pretend to be one.

248 X Q. 68. Is there not a rule in mechanics that where one metal meets another, in regard to friction, that the difference in surface makes no difference in the friction—none whatever?

Ans. That may be, but I never saw a case where two inches of surface came together and there would not be more friction than there is where one inch comes together. It may be so in theory, but I never found it so in practice.

X Q. 69. Is not that a rule in mechanics?

Ans. No, sir; I never found it so.

X Q. 70. That to a given weight there would be the same friction on one square inch that there would be with the same given weight to four square inches?

Ans. No, sir; I have never seen that rule; it may be there.

X Q. 71. As a mechanic, what is the rule as to the difference, if there is any difference?

Ans. I could not tell you. That is the theory of mechanics as opposed to practice.

X Q. 72. What tests have you made to show that there is any difference?

Ans. Well, I have had a good many during my life, but I could not call any to mind just at present. If we have time, I would be willing to try the two models with you. I know that if I take a washer and put it under a screw, and, say, the washer is four inches and the screw is one inch, I can hold a good deal more under that washer than I can to take the washer out and let the screw come down onto it.

X Q. 73. The rules of mechanics are against you. That is a well-recognized rule as regards friction.

Ans. It may be in theory, but it is not in practice. I am willing to stand by that statement yet.

249 X Q. 74. You have not tested it or you would not now make the statement. You never did.

Ans. That is the only thing. Where I have increased the surface it increased the friction.

X Q. 75. Without any weight?

Ans. Yes, sir.

X Q. 76. You increased it simply by increasing the surface?

Ans. Yes, sir.

X Q. 77. I guess if you go home and make a test you will find yourself mistaken. That is an elementary rule in mechanics. In Mr. Coupe's machine does the screw-heads extend beyond the shaft when the hides are fastened in?

Ans. As I said before, I could not exactly tell about that point. I know there is something of that kind. There is a washer on that machine, but, as I say, I never worked on that part of his machine.

X Q. 78. Do you know how the hides were fixed?

Ans. They were fixed by something of that kind.

X Q. 79. I have especial reference to the length of the screws—as to whether the heads were countersunk and came flush with the outside of the shaft or not?

Ans. I could not tell you.

X Q. 80. Then how did your experience with Mr. Coupe's machine, if you cannot tell how they were arranged, assist you in arranging this one as you have testified?

Ans. By casual observation in going around his place and the part of the machine I did alter. I know about the friction; the other things I only know by observation.

X Q. 81. What part was that?

Ans. The underneath part—the gear that drives the cribs, I believe he calls them, or something of that kind.

X Q. 82. How did your looking over the running gear of his machinery underneath these cribs assist you any in arranging
250 these set-screws in the shaft?

Ans. As I said before, I do not know anything about the set-screws, only by casual observation. I would not want to say anything about them.

X Q. 83. Did you not say it was on account of your experience with Mr. Coupe's machine that you made these screws longer and left the heads standing out?

Ans. No; I did not. I made the remark that I made them longer on the inside to make them strike the leather on the inside so as to hold it.

X Q. 84. Did you say that was from your observation of Mr. Coupe's machine?

Ans. No, sir; on account of common sense. I knew there was no use in putting a screw in there an inch away from the leather when the thing to hold was not more than one-eight- of an inch of leather.

X Q. 85. Now, suppose you found the screw as it is in the drawing and you know you have got to squeeze that leather, how would you change it, if at all?

Ans. You mean to say how would I change this drawing to make the screw go in?

X Q. 86. Taking that drawing just as it is, and knowing that you have to make the point of that screw reach the leather on the opposite side of the slot, and that you must not lengthen the screw any, what change would you make in the shaft in order to make the screw reach the required distance?

Ans. I do not think I would make any change in the shaft.

X Q. 87. What would you do if you couldn't alter the screw?

Ans. If the screw was not large enough to admit the square wrench, or, in other words, the male socket wrench, I should throw it away or else increase the size of the shaft.

251 X Q. 88. Do you find anything at all in the patent about a socket wrench or a square head?

Ans. Not to my memory now; it may be in there.

X Q. 89. No, it is not there; you need not look for it. Why would you not just countersink and let the screw in as it is ordinarily done?

Ans. I cannot say that it is ordinarily done. I will show you at my place 5,000 of this kind of screws, on hand at the present time, for a similar purpose.

X Q. 90. Do you know what a countersink is?

Ans. Yes, sir; I do.

X Q. 91. What is it?

Ans. It is a recess in a shaft.

X Q. 92. What is it for?

Ans. It may be to allow a screw or the head of a screw to go into the shaft.

X Q. 93. Is it an ordinary and well-known mechanical device?

Ans. It is in some places.

X Q. 94. Can you name a machine shop or a single apprentice who has worked in a machine shop that does not know what a countersink is?

Ans. Yes, sir. I can name some men outside of it that do not know what it is.

X Q. 95. Machinists?

Ans. Yes, sir.

X Q. 96. That do not know what a countersink is?

Ans. Yes, sir; some that are not machinists.

Redirect examination.

(By Mr. THURSTON:)

Q. 97. A single question. Your attention has been drawn by Mr. Wheaton to what he thinks is a rule of mechanics, with which you do not agree?

Ans. Yes, sir.

252 Q. 98. Now let me put you a case. Suppose that a screw bears upon a washer to hold, say, with a friction equal to 20 pounds; then you take that washer out and put another washer in of double the area; turn up the screw just exactly as strong as before; would you or not get double the holding capacity?

Ans. I do not think I would get double; I think I would get some more.

Q. 99. Is not the rule different from what has been suppose-, and is it not the multiplication of the pressure into the area, or substantially that?

Ans. That is something, as I say, that I am not thoroughly

skilled enough to answer; but I know by practice that increasing the surface will increase the power with the same pressure.

Testimony of William Coupe (Recalled).

(By Mr. THURSTON:)

Q. 617. Your attention was drawn by Mr. Wheaton to a case like this: Hides weighing 30 pounds to a dozen sides, or, what is the same thing, six hides weighing 30 pounds, and you were asked to state what you sold them for, and you said at 22 cents per square foot. That, figured up, brings $3.52, at 16 feet to the hide. A comparison was then made with hides of the same size which have been tanned by the Page process, and you stated that you got for those 60 cents a pound, that would figure up $3.00. That would show a difference of 52 cents that you would get more for the rawhide than for the Page-process hide. Is that 52 cents profit?

Ans. No, sir; there is no more profit substantially in the rawhide than there is in the tanned leather.

Q. 618. Why not?

253 Ans. Because we are obliged to use a different class of hides for the rawhide leather than we are for the tanned leather; that costs more money, so that it makes the profit on the tanned leather and the profit on the rawhide leather substantially about the same.

Q. 619. Is there any more work involved in the rawhide manufacture than there is in the tanned manufacture for lace-leather?

Ans. There is more work involved; it costs more to work rawhide than it does to work tanned leather.

Q. 620. What description of hides do you use for the rawhide manufacture?

Ans. We use what is termed ordinarily our own domestic slaughter hides.

Q. 621. For the rawhide?

Ans. For the rawhide leather. For the tanned leather we use what is called an East India or Patna kip, which comes at a less price.

Q. 622. Then the stock in one case is of a higher grade and more costly than in the other. Is that what you mean to say?

Ans. Yes, sir.

Cross-examination resumed.

(By Mr. WHEATON:)

X Q. 623. In that tanning operation how many times do you have to handle the hides over after they are unhaired until they are finished?

Ans. Do you want me to give you that in detail?

X Q. 624. No; just say how many times you have to handle them over.

Ans. I should have to count all the different processes we go through in order to tell you how many times they are handled.

254 X Q. 625. All right. Just go through with a quick catalogue of the different steps of the process.

Ans. Tanned leather? We will suppose it to be taken from the liquor. The first operation after it is taken from the liquor——

X Q. 626. No. The first operation after it is unhaired.

Ans. The first operation after it is unhaired is to subject the hide—they have to be what is commonly called green-shaved—that is, taking off the flesh. After they are green-shaved they are subjected to what is called the drenching process. That drenching process is a solution of any material that you think proper to use to neutralize the effect of the lime. After you have neutralized the effects of the lime and worked all the dirt thoroughly out of the hide it is then ready for what is called "going to the liquors." It goes through a certain process of tanning. After that tanning is completed it is then removed from the tan.

X Q. 627. It is the steps in the tanning process that I want.

Ans. I am giving you this in detail. I cannot give you just exactly every little thing because there are so many, but I shall have to give it to you in detail.

X Q. 628. You know how many times you have to handle hides over in tanning?

Ans. They are handled several times in tanning according to the thickness of the hide, according to the strength of the liquor and the nature of the hide that you want to tan.

X Q. 629. On the average how long do you keep hides in the liquor?

Ans. I object to answering that question. That is a secret of the business that I do not wish to tell.

Mr. THURSTON: I do not know any power to make you.

The WITNESS: That is rather thin, that is, Mr. Wheaton.

255 X Q. 630. If you have got a secret of your own do not tell it. I will not ask you to tell it. I merely wanted to get at the amount of labor. That is all that I was driving at.

Ans. The amount of labor of putting a hide through the simple process of tanning is just about equal to putting it through the process of milling in this crib of yours. There is substantially no difference—that is, when you take into consideration the power that is used in connection with this method of softening and the power you do not use in the tanning process.

X Q. 631. In the tanning process it is all hand labor, and that is much more expensive than the labor performed by a steam engine, is it not?

Ans. Hand labor is more expensive, but not in proportion.

X Q. 632. I will ask you this question generally: From the time that you commenced tanning about how long on the average does it take to finish, including all the steps?

Ans. Do you have reference now to the currying of leather?

X Q. 633. To the finishing and the tanning.

Ans. You are combining two things that do not express what we commonly understand in the process of manufacture. If you want

to know how long it takes us to finish leather after it is taken from the tannery I will give you an idea.

X Q. 634. No. I want to get an idea as to how — it takes from the time you put the leather into the tannery until you get it away from the tannery—get the hides away. I do not mean the finished leather. I mean when you take it away from the tannery to commence finishing.

Ans. You will understand that tanning embraces a number of different methods. The hides before they are prepared to
256 go through the tanning process have to go through several different processes. Now, if you want to know how long it takes for the hides to go through the early processes previous to tanning——

X Q. 635. I have been asking you all the while how long it takes to go through the tanning process without regard to the earlier processes or the subsequent processes; just the length of time it takes to go through the tanning process alone.

Ans. Do I understand you to mean how long does it take to convert hides into leather? Is that what you mean?

X Q. 636. How long does it take from the time you first put rawhides into the tanning liquor the first time until you take them out of the tanning liquor for the last time?

Ans. We have done it in about 15 days—completed the entire process.

X Q. 637. How long will it take on the average?

Ans. If we were to work through constantly on the same speed we could complete the process in that same length of time, but we do not propose to work it so quickly all the time; we think it is better to give the hide a little bit longer time.

X Q. 638. Now, during that 15 days how many times are the hides taken out of the liquor and put back again?

Ans. You have reference again to the liquor; you say, "the liquor." I told you I did not wish to tell you how long it took me to tan my leather, but you seem to be coming back to that particular point which I do not want you to know anything about.

X Q. 639. I believe that has been the principle point of your evidence all the way through, not to let us know anything about. I only ask you now how many times the hides have to be
257 taken out of the liquor and returned again to the liquor during that 15 days. I am not going to ask you how long you leave it in each time, I am only getting at the question of labor.

Ans. You convey the idea that these hides remain in the liquor 15 days. When I said 15 days I included the entire process of converting hides into leather; I included the process previous to going into the liquors.

X Q. 640. I asked you how long it took from the time you first put it into the liquor until the last time you took it out of the liquor and you said 15 days.

Ans. No, sir; I beg your pardon, but you are mistaken. I said it took 15 days to complete the process of tanning, or, in other words, to convert hides into leather. Now the process of tanning is simply

subjecting the hides after the previous preparation to a solution of tannin; that is what is called tanning in the ordinary acceptation of the term.

Mr. WHEATON: I guess I will quit you; you are too much for me.

Testimony of Michael McGowan.

(By Mr. THURSTON:)

Q. 1. Did you make the model before you?

Ans. Yes, sir; I superintended the making of both models.

Q. 2. State whether the model before you is a correct model of the machine that was made at Franklin foundry.

Ans. Yes, sir; it is a correct model with the exception that there are no slots in the heads of the screws as there are in the machine made at the Franklin foundry.

Q. 3. That is the only difference?

Ans. That is the only difference, sir; it is made to a scale.

258 Q. 4. These screws in here where you attach the hide, you have got them square-headed?

Ans. I made them square-headed. I took them as I found them in the factory; had hard work to find them, they are so small.

Q. 5. How do they correspond in size with the heads of the screws shown in the machine with respect to their projection beyond the surface of the shaft?

Ans. About the same; just about the same. The screw screwed up tight would come up and hang inside of the shaft, under the head.

Cross-examination.

(By Mr. WHEATON:)

X Q. 6. You heard the testimony of Mr. Lee here, did you not?

Ans. Yes, sir.

X Q. 7. You heard him testify that the screws were longer as made in the machine than they are in the drawings of the patent in proportion, did you not?

Ans. I heard him say he pieced them out on the inner side to make them hold the hides.

X Q. 8. That made them longer, did it not?

Ans. That made them longer on that end; yes, sir.

X Q. 9. You have been in the court here several days, have you not?

Ans. Yes, sir.

X Q. 10. You heard Mr. Coupe describe the trouble that he met with on account of the heads of those screws projecting, did you not?

Ans. Yes, sir.

X Q. 11. How, after hearing about that and knowing the importance of that question of the length of the screws, can you come in here and say the screws in that machine are the same in proportion as those shown in the patent?

259 Ans. I do not say as shown in the machine.

X Q. 12. You are not comparing the machine with the patent?

Ans. No, sir; with these models.

260 *Plaintiffs' Evidence in Rebuttal.*

Testimony of Joseph Meier.

(By Mr. WHEATON:)

Q. 1. Please state your name, age, residence, and occupation.

Ans. My name is Joseph Meier; my age is 38 years; residence, Milton, N. J.; occupation, leather belting; place of business, Newark and New York.

Q. 2. What was your business from 1873 to 1876?

Ans. Book-keeper and salesman.

Q. 3. In whose employ were you?

Ans. In the employ of Antoine Heim, 33 Ferry street, New York.

Q. 4. What was Mr. Heim's business?

Ans. Manufacturer of leather belting.

Q. 5. When did you first go into his employ?

Ans. On October 17, 1870.

Q. 6. And continued how long?

Ans. Until August 26, 1878.

Q. 7. When, if ever, did you know an article made of rawhide by mechanical operation containing a stuffing of tar and other things and called sometimes fulled rawhide and sometimes fulled leather?

Ans. In 1873, I should say.

Q. 8. Where did you first know that article?

Ans. At the place I was employed at at that time, at Antoine Heim's, 33 Ferry street, New York.

Q. 9. Who manufactured it?

Ans. Herman Royer, San Francisco, Cal.

Q. 10. Was Antoine Heim at that time purchasing other kinds of lacing leather from William Coupe & Company?

Ans. He was.

261 Q. 11. What name, if any, was it known by?

Ans. By the Page's patent process—Page's patent lace.

Q. 12. What examination, if any, did you ever personally know Mr. Coupe to make of that rawhide leather at Antoine Heim's?

Ans. The examination, as near as I can remember—that is, the general conversation in regard to the matter—we were buying lacing of Mr. Coupe at the same time we were buying this lacing of Mr. Royer, and the question turned up was how we liked the rawhide lacing, and I made the remark that it seemed to be very good lacing and was taking. Mr. Coupe asked the question if he could see it. It was lying right on the shelf near his lacing—that is, the rawhide was—in one or two partitions, and the Page's patent was on several more. My part of the business was in selecting the leather, grading

it, marking it, &c. I took a side down and showed it to Mr. Coupe, and Mr. Coupe looked at it, made no special remarks, cut a piece off and put it in his mouth, as you naturally would when you saw anything new, chewed it, and said, "That is not any leather; that will come back to gelatine again," and I will not be positive whether at that time he took a strip or at some time afterwards he cut a little off of another side and took it with him, and said, "I would like to make a chemical test of that." Then, of course, he saw the lace from time to time as he came. We were dealing quite extensively with him, and he came in there for orders and settlements, &c.

Q. 13. How early was it that he knew of that rawhide leather of Mr. Royer's being at Mr. Heim's?

Ans. I should say it must have been at least in '73 or '74; in 1873 or 1874.

Q. 14. How extensively did Mr. Heim purchase that rawhide leather of Mr. Royer?

262 Ans. In the beginning—that is, I have taken an abstract from the purchases that were made, and this (a paper) is an abstract from the ledger from March 12, 1873, until August 12, 1875. If you will take the memorandum it will show you how the purchases increased.

Q. 15. Just read it off and the stenographer will take it down.

Ans. (Reading:) "1873, March 12, $139.83; April 19, $140.57; June 25, $133.00; 1874, February 25, $113.41; May 23, $243.04; August 20, $190.18; September 15, $331.43; October 30, $365.39; in 1875, February 9, $340.19; April 13, $178.65; May 12, $441.92; August 5, $437.64."

Q. 16. How much does that foot up in the aggregate?

Ans. Three thousand and fifty-five dollars and fifteen cents.

Q. 17. When was the last that there was any of Herman Royer's fulled leather at Mr. Heim's place?

Ans. As near as I can remember, the last leather that we got from Herman Royer was sold on orders before we received it. There was some of his leather that remained at the place, made out of Calcutta or East India kips, and that remained on hand because it was not good enough to sell. It was too brittle. We did not dare to sell it at the time. There was only a few sides that remained there until, I think, the latter part of 1876. We commenced to purchase elsewhere then.

Q. 18. As near as you can fix it, at what time in 1876 was Mr. Herman Royer's fulled leather there?

Ans. At the place?

Q. 19. Yes, sir.

Ans. I cannot fix it within six months, but I should say it was within the latter part of the year. They were termed "shopkeepers," and those few sides laid there a good while after the good stock had been sold.

263 Q. 20. Do you know whether that purchase of March 12, 1873, was the first Mr. Heim purchased of Mr. Royer?

Ans. I do not think it was, sir. On looking over the books I

found that the books previous to 1873 and after 1875 are missing from the office.

Q. 21. From what did you make the memorandum that you have just read to the jury?

Ans. From the ledger—that is, from the regular ledger dating from 1873 to 1875.

Q. 22. Who kept that ledger and the books of Mr. Heim at that time?

Ans. I did, sir.

Q. 23. Are those entries all in your handwriting?

Ans. They are.

Q. 24. You know those dates, of your own knowledge, to be absolutely correct?

Ans. Yes, sir; I do.

Q. 25. Now, what effect, if any, did this purchasing of fulled leather, fulled rawhide, from Mr. Royer have on Mr. Heim's purchase of the Page patent lacing from Coupe & Co.?

Ans. The percentage of difference in business, of course, I am not prepared to say, because trade may increase and trade may decrease as the seasons or customers are, but this fact I know, that instead of selling as much of the heavier grades of lacing that we had of Mr. Coupe we sold less of that and more of Mr. Royer's. Mr. Royer's being the heavier lace, it took the place of Mr. Coupe's and all else. The lighter lace—it was not practicable to make it out of Calcutta kips, and the domestic hides were not small enough unless they took calf-skins to make the same size as the small Patna kips, and the demand for small hides, "a cheap side" that would sell for $1.50 or $2.00, of course that we had to sell out of Patna stock.

264 Q. 26. How long after Mr. Heim commenced keeping Mr. Royer's rawhide leather was it that Mr. Coupe examined it, as you have testified, as near as you can fix the time?

Ans. How long after we commenced to buy the leather? How long a time elapsed between the time we bought the leather from Mr. Royer's to Mr. Coupe's examination of it?

Q. 27. Yes.

Ans. I should say about a year—within a year. It was a novelty at the time, and as a novelty, of course, it is natural for any one to examine it.

Q. 28. Explain a little more fully, in fact quite fully, what you mean by its being a novelty.

Ans. Because it was a new lace leather that was brought into the market.

Q. 29. That is that of Mr. Royer's?

Ans. Yes, sir; it was a new leather. There had been a leather known as the leather we had imported from Germany previous to that; a leather known as, I think it was called "The Crown" or some name like that; I forget now exactly what it was; but that was too hard to take on this American market; it would not sell, and we had to stop buying it. Just about that time Mr. Royer came with his samples from San Francisco; of course the exact date of that I would not state, but it would be between '72 and '73,

because I have a memorandum here of a purchase in '73, and before this purchase was made Mr. Royer was there with samples to show those samples. On the strength of the looks of the goods and the testing you could do by hand he was given an order—a small order.

Q. 30. State whether or not you ever heard any complaint from those that purchased Mr. Royer's fulled leather lacing of its cutting the belts on account of the strings being harsh and sharp at
265 the corners.

Ans. I have never heard any complaints of that kind to my knowledge, and if there had been any complaints I should have got them, having charge of the selling, &c.

Q. 31. How would the edges of the strings cut from Mr. Royer's fulled leather compare with the hardness and sharpness of the edges of similar strings cut from other known lace leathers?

Ans. You mean by "other known lace leathers" the Page's patent or the German lace leather?

Q. 32. Yes; make your own comparison, picking out——

Ans. I would say that Mr. Royer's was softer, as compared with the German; in comparison with the Page's patent, of course there is no leather that is softer than the Page's patent lace leather.

Q. 33. There are other lacings that were not patented, were there not, on the market?

Ans. I do not believe there were, sir; all the lacing that I know was on the market at that time was that manufactured by the Page's patent process, by different ones, but, of course, under Page's patent; then there was this German lace leather, and then this lace leather of Herman Royer's, of San Francisco.

Q. 34. Now after Mr. Heim quit purchasing from Mr. Royer of whom did he purchase that rawhide fulled leather from?

Ans. We purchased several lots from Schultz & Royer, of St. Louis.

Q. 35. When did you commence purchasing from them?

Ans. As near as my memory serves me it was in 1876, because when we quit with Mr. Royer's we had to have a substitute for it in order to keep up the trade upon the rawhide that we had worked up.

Q. 36. After Mr. Herman Royer's had been put on the market and tested by your customers how was the demand for it afterwards?

266 Ans. The demand increased because our stock was kept low, our purchasing kept increasing, our stock was kept low, and the demand seemed to have increased right along.

Q. 37. Does that memorandum you have show how the demand increased?

Ans. I guess it does (referring to the memorandum); this memorandum shows that between the dates of March 12, 1873, and February 5, 1874, our purchases were $769.85; between May 23, 1874, and February 9, 1875, it was $1,227.10, and between February 9 and August 5 our purchases were $1,058.21.

Q. 38. To what extent did your purchases of this rawhide leather

from Mr. Royer interfere with your purchases of lace-leather from Coupe & Company?

Ans. That would be rather a difficult question to answer promptly—that is, on account of the variations and the ups and downs of the trade; the only way we can look at it, we can take an account of it in two ways; one would be by a comparison of the sales of this lace after we undertook to keep it regularly with the sales of the other lace, or, on the other hand, the depreciating of the sale of Page's lace and the increase in the sale of rawhide; to the best of my knowledge the difference was that we sold more—that is, we sold less of the large sides of lace manufactured under Page's patent than we did before we got the rawhide lacing.

Q. 39. When, if ever, did Mr. Heim purchase any of this rawhide leather from Eckfelt & Ritchie, of Philadelphia?

Ans. That I would not be positive about, either; all I remember is indistinctly that we had a sample from them; to what extent that sample was I do not remember, but I know there was a check sent to them of some $27.00 or $29.00 in settlement of that sample.

267 Q. 40. Do your books show dealings with them?

Ans. That I cannot say; the books must have shown, of course, but I did not look it up to see.

Q. 41. Have you any memorandum when that account was settled with them?

Ans. There is a memorandum in that book there that Mr. Royer has. I called a memorandum off to you, a copy of a letter to Eckfelt & Ritchie where he sends them a check, I think, for $27.00 or $29.00 in settlement; that, I think, was all that was purchased of them.

Q. 42. Did Mr. Royer take it down at the time, or did you make it yourself?

Ans. No, sir; Mr. Royer put it down, but I read it from the letter book, a copy of the letter; it did not state what it was for; it merely said: "Gentlemen: Enclosed please find check for $27.00 in settlement. (Signed) Antoine Meier." It was a personal letter, which he wrote himself.

Q. 43. What was the date of it?

Ans. This is November 13, 1876 (reference being made to Mr. Royer's note book).

Q. 44. What is your recollection as to that being recorded?

Ans. My recollection—the only recollection I have is that I read this from a letter book of that year where it was copied.

Q. 45. The trouble is to know whether it is taken down there as you read it to him?

Ans. I called this off to him.

Q. 46. Is it written in the book just as you read it to him?

Ans. Yes, sir.

Q. 47. And you read it to him as it is in the letter book?

Ans. This is not all the letter; all this is is a memorandum: "November 13, 1876, sent to Eckfelt & Ritchie $27.30 in settlement." But I know the purport of that letter was: "November 13,

268 1876. Messrs. Eckfelt & Ritchie, Philadelphia, Penn. Gen-

tlemen: Enclosed please find my check for $27.30 in settlement. Please receipt for the same and oblige, very truly yours, Antoine Heim."

Q. 48. What is your recollection as to what that payment was for?

Ans. As near as I can remember I think that payment was for half a dozen sides of lace-leather.

Q. 49. Of what kind?

Ans. Rawhide lace-leather.

Q. 50. What, if anything, did Mr. Heim himself do about manufacturing lace-leather?

Ans. Mr. Heim put in fulling wheels, bought green hides and tried to make rawhide lacing; he tried to make it.

Q. 51. How did he succeed?

Ans. Well, it was uphill work and he never did succeed.

Q. 52. What machines, if any, did he use for the mechanical manipulation of the rawhides?

Ans. The machine he used was the fulling wheel with pins put into the fulling wheel or stuffing wheel, with wooden pins inside; then he had a rack with two jaws, like, that caught the hide on one side and the other, with a chain around it, and that was twisted back and forth.

Q. 53. What was the reason of his failing to succeed?

Ans. Because he did not seem to understand the making of rawhide leather.

Q. 54. At what time was it that he commenced to make that rawhide leather?

Ans. I should say it was in 1877.

Q. 55. How did the article that he did manufacture compare with Mr. Royer's fulled leather?

Ans. It did not compare favorably at all.

269 Q. 56. What would be the difference in value between the two, if any, if you can give us in some kind of language a correct idea?

Ans. About as near as you can draw the difference is, the difference is so great it is hard to draw it accurately, but I should say that in having Mr. Royer's leather and using it it proved satisfactory and there did not seem to be any break. Take Mr. Heim's leather and it did break. Therefore one, you might say, was worthless, while the other seemed to answer the purpose.

Q. 57. How did Mr. Heim succeed in competition with the Page patent lacing and other kinds of lacing in the market that was not fulled leather?

Ans. You mean how did he succeed with his leather in competing with it?

Q. 58. Yes, sir.

Ans. He did not come up to it—that is, he could not compete with that.

Q. 59. What was the result to him financially?

Ans. Failure.

Q. 60. Where is Mr. Heim now?

Ans. He is in Hamburg, Germany.

Q. 61. How long has he been out of the United States?

Ans. About two years.

Cross-examination.

(By Mr. THURSTON:)

X Q. 62. Any complaints against Royer's rawhide along at the first?

Ans. Not to my knowledge.

X Q. 63. How came you to stop taking that leather?

Ans. We came to stop having anything to do with his leather because Mr. Heim had the idea that Mr. Royer was making too much money out of the leather and he thought he could
270 manufacture it as cheap as Mr. Royer and still compete with him.

X Q. 64. So he tried it, did he?

Ans. He did; yes, sir.

X Q. 65. Have you ever seen those fulling mills of Heim's work?

Ans. Yes, sir.

X Q. 66. They softened a hide nicely, didn't they?

Ans. They did not.

X Q. 67. Did he do any stuffing?

Ans. He did.

X Q. 68. It is of no use to make rawhide without stuffing it? Would it be of any use to soften rawhides unless they were treated by some material to keep them in that condition?

Ans. After they were softened?

X Q. 69. Yes.

Ans. I do not think it would in making this fulled lace-leather.

X Q. 70. One of the differences was that that leather was not so strong. What was the reason that it broke, do you suppose?

Ans. I think the mechanical operation was not the right thing for making it.

X Q. 71. He tried to make leather in competition with the Page patent leather, did he not?

Ans. No, sir; not to my knowledge.

X Q. 72. He tried to make various descriptions of leather besides lace-leather?

Ans. Picker leather.

X Q. 73. The result of his whole adventure was that he failed financially?

Ans. Yes, sir.

X Q. 74. How came you to buy Schultz & Royer, as I understood you to say you did buy of them? I want to know why you came to buy of them.

Ans. We came to buy of Schultz & Royer because Mr. Herman Royer would not sell him any more on his own terms. He was a very hot-tempered man, very decisive, and he made up his
271 mind that if he could not get it from Herman Royer, of San Francisco, he would get it of some one else if he could.

X Q. 75. So he got it of Louis Royer and Schultz, too?

Ans. It was the firm of Schultz & Royer, of St. Louis. He made some purchase of them.

X Q. 76. He bought of Louis Royer and Schultz?

Ans. He bought of Schultz & Royer.

X Q. 77. Was that good leather?

Ans. It was fair leather.

272 *Testimony of George P. McMahon (Recalled).*

(By Mr. LIVERMORE:)

Q. 84. You have testified before?

Ans. Yes, sir.

Q. 85. What is your age?

Ans. Twenty-eight this month.

Q. 86. How many times have you been in the employ of Mr. Coupe?

Ans. About three or four different times.

Q. 87. Have you any prejudice against Mr. Coupe?

Ans. None whatever; have no reason to have any.

Q. 88. You have been in the employ of Wetherhead & Thompson, I think you said?

Ans. Yes, sir; and I am there now.

Q. 89. Are they using machines for making this rawhide lace-leather?

Ans. They are.

Q. 90. How do they resemble or differ from this model of the patented machine, "Ex. 2"?

Ans. The difference is not any to speak of. They work on the same principle; they have a weight on the hides similar to this that is pressed upon them.

Q. 91. Pressed down by a lever?

Ans. By a weight and lever, both.

Q. 92. Have they a revolving shaft?

Ans. They have.

Q. 93. Which revolves in two directions, as in the model?

Ans. They have.

Q. 94. How are the hides fastened to the shaft of this machine?

Ans. They are fastened in a slot which is cut clear through the shaft.

Q. 95. Cut clear through the shaft, and then what holds the hides into the slot?

Ans. Those set-screws.

Q. 96. Like what are in that model, "Ex. 2"?

Ans. I could not state whether they are exactly like that,
273 but they are in the shaft.

Q. 97. Do they abut against the hide and hold it against the side of the slot?

Ans. Yes; with a clamp in there opposite that weight.

Q. 98. A clamp between the end of the set-screw and the hide?

Ans. Yes, sir.

Q. 99. A disk, is it?

Ans. Yes, sir.

Q. 100. So as to get a firmer hold?

Ans. Yes, sir.

Q. 101. How many of these set-screws are there in each shaft, do you remember?

Ans. I think there are four.

Q. 102. Do those machines have pins surrounding the shaft, making a cage, as in this model?

Ans. Yes, sir; they have a frame around; they are all fastened alike—four of them. The frame is around them all, just the same.

Q. 103. How long, to your knowledge, have Wetherhead & Thompson used such machines?

Ans. Since 1881.

Q. 104. Constantly or otherwise?

Ans. Since I have been in there they have been using them to their full capacity—ever since.

Q. 105. How many of that kind of machines have they?

Ans. Four.

Q. 106. They have been using them at their full capacity?

Ans. Nearly.

Q. 107. And the lace-leather produced in those machines have they kept it on the market constantly?

Ans. Yes, sir; they have.

Q. 108. Do you know whether it is sold in competition with Messrs. Coupe & Company's lace-leather?

Ans. It is a similar leather, and I suppose it is sold by the same parties. I could not distinguish the difference between them as they are manufactured.

274 Q. 109. How many hides a day do these machines of Wetherhead & Thompson average to turn out, each machine?

Ans. Between ten and fifteen.

Q. 110. Do you refer to each machine?

Ans. Each machine.

Q. 111. You have heard Mr. Coupe's testimony that each of his machines turns out about five hides a day—four or five?

Ans. I do not remember his testimony to that effect. I could not say. I do not remember he said he took out.

Q. 112. Something has been said in Mr. Coupe's evidence to the effect that the cage in the machine used by Wetherhead & Thompson is made in two parts, which open. Is that a fact or not?

Ans. I think some of them do open; I cannot say they all do.

Q. 113. Some do open?

Ans. They can remove the bars from some of them. They are all arranged different, I think.

Q. 114. What is the purpose of opening the cage in that way?

Ans. They open it to get at the shaft.

Q. 115. Now, when those two parts are close together, is the cage substantially the same as it is in this model, "Ex. 2," or not?

Ans. It is; and they can remove a bar if they do not wish to open the cage and get into it.

Q. 116. Then when the two parts of the cage are closed together so that the cage is substantially like that in the model, "Ex. 2," does the fact that the cage is in two parts have any effect upon the operation of the machine in winding and unwinding the hides?

Ans. It has no effect whatever; it cannot have, as the hides are in there, and they will revolve. The hides are not in just such shape as this leather, of course; they are bound together by this weight and lever pressing upon them.

275 Q. 117. Are the cages kept shut while the machine is running?

Ans. Certainly.

Q. 118. So that the cage is not open until the hide is finished?

Ans. No, sir; it is not, unless they are called upon to open them and open them.

Q. 119. About the screws. Do you know whether the set-screws in those machines of Wetherhead & Thompson project out beyond the shaft when they are set up into place?

Ans. They do not, and I do not think they ever did, as long as they were set up in the shaft, not any of them.

Q. 120. How is that obviated or prevented?

Ans. Why, they are slotted in sufficient to let them in.

Q. 121. Where is that slot?

Ans. In this vertical shaft.

Q. 122. Countersunk, is it?

Ans. Countersunk; yes, sir.

Q. 123. Did you hear Mr. Coupe's testimony about the difficulty that he had in running a machine with a vertical shaft which he has made at the Franklin Foundry Company's works?

Ans. I did hear every word that he said.

Q. 124. Did you ever hear of any difficulty of that kind in Wetherhead & Thompson's establishment?

Ans. They never had any difficulty there to my knowledge.

Q. 125. Have you seen the machines run there?

Ans. Yes, sir; I have seen them run many a day.

Q. 126. Did you ever see the hides twist around, double up, or rope out so they would stop the machine?

Ans. They cannot twist when they are in position; they cannot be made to twist by him or any other man. A hide running

276 in that machine cannot be unwound; it is beyond his control to unwind it while it is in operation, because it is a very powerful machine.

Q. 127. You saw Mr. Coupe put his handkerchief into that model to illustrate how the machine operated. Is that a fair exhibition how a hide would hang?

Ans. It is not, when a stiff hide would sit up in that frame and wind in.

Q. 128. They are dampened, are they not?

Ans. They are not dampened altogether. If they were, it would not do so.

Q. 129. Then the handkerchief was not a fair illustration?

Ans. I should say not. I think any practical leatherman would think differently.

Q. 130. Did you ever see any hides put into this upright machine?

Ans. Many a time.

Q. 131. How many men does it take to put a hide into that vertical shaft?

Ans. One man can put in it, or two; one can assist the other.

Q. 132. Yes, naturally one can assist, but can one do it practically?

Ans. Oh, yes; one can do it practically.

Cross-examination.

(By Mr. THURSTON:)

X Q. 133. In what department of Wetherhead & Thompson's establishment are you employed?

Ans. I am employed principally in the third story.

X Q. 134. That is, they have a department in their establishment called the third story? I asked you what department you were employed in, in the establishment of Wetherhead & Thompson.

Ans. Most of the time I am employed in the third story; recently, altogether.

277 X Q. 135. Now, these fulling machines are in the third story, are they?

Ans. They are not.

X Q. 136. You think they are not?

Ans. I know they are not.

X Q. 137. Then you have nothing to do with the fulling machines that are there, if you are employed in the third story?

Ans. Nothing whatever.

X Q. 138. Nothing whatever have you to do with those machines?

Ans. No, sir; nothing whatever.

X Q. 139. You are a skiver, are you not?

Ans. No, sir; I am not.

X Q. 140. It is part of your business to skive the flesh off of the inside of the hides?

Ans. I very seldom skive any leather.

X Q. 141. That is part of your trade, is it not?

Ans. Skiving?

X Q. 142. Skiving.

Ans. I do not consider myself a skiver. I can do it. I have skived some.

X Q. 143. But you are not good at it? Is that what you mean to say?

Ans. I have never said anything of the kind. My reputation as a workman can be tested, and is well known here in this State and the State of Rhode Island. I have worked for Mr. Coupe, and I wish to say, in regard to his prejudice against *him*, I have left him at various times, and the most wages I ever received in his establish-

ment was $31.00 or $32.00 in two weeks. On leaving him I went to work first for the Star Belting Company, and I worked until the company dissolved, and the foreman told me to go and get another job, and I went back to Mr. Coupe's and got it. I worked for
278 him as long as I saw fit, and when I thought I could better myself I left him. I went to Wetherhead & Thompson's and worked for a short time. I worked there a little while, until business got slack again, earning good wages all the time, and I went back to Mr. Coupe's to get employment. He did not give it to me; said he did not need any help; did not need me; he gave me good advice, and I left him. I wish to say in justice to myself and to him that I have no prejudice against him; I have no reason. The best part of my ability belongs to Mr. Coupe; he gave it to me, and as for my being adapted to one particular place in the shop I never was. There was not anything in the shop up to my time that I did not know when I left. I went there as a small boy, as he says, and I had to work my way up. I did not go to him; I went to his foreman.

X Q. 144. We accept your apology.

Ans. I do not make it as an apology.

X Q. 145. But that is not the point I am examining you on. It is with reference to your capacities in the manufacture of lace leather. Are you a tanner and a currier? Is that your trade?

Ans. I know something about tanning.

X Q. 146. What branch of the tanning business have you learned as a trade? What is your trade?

Ans. I worked in Mr. Coupe's establishment three or four years before I let myself as an apprentice and had obtained a general idea of the work. I saw other young men in there who were getting ahead of me, who came in after me, and I asked him to take me and learn me the knife-work, and he did. He reduced my wages and did it, and he knows whether I worked for him faithfully or not.

X Q. 147. Again I ask you what is your trade. Are you
279 a currier, a tanner, a skiver?

Ans. No; neither one.

X Q. 148. You were a chore boy, were you not?

Ans. True enough. Am I to remain one as long as I live, please?

X Q. 149. Now, as you work in the department called the third story at Wetherhead & Thompson's, and as these machines are not there on the third floor, please tell us where those machines are.

—. I have stated they are not on the third floor.

X Q. 150. Where are they?

Ans. In the bottom story. But recollect I have worked many a day there when they were within ten feet of me and when I could watch them all day working.

X Q. 151. Now, about how heavy is that weight in these machines that Wetherhead & Thompson are using, according to your estimate?

Ans. I could not estimate the weight. I know there is a lever

you can attach to it and put on a large amount of weight, as the lever is short on this side and long on this.

X Q. 152. About how long is that lever?

Ans. I should judge the lever was from seven to ten feet long.

X Q. 153. There is a fall and tackle to it?

Ans. A false tackle.

X Q. 154. A fall and tackle hitched to this lever?

Ans. There is not anything of the kind. There is a rope attached to this lever, which is run up sometimes and attached to a staple that is used to lift up the lever.

X Q. 155. You work this lever by this rope?

Ans. Not necessarily.

X Q. 156. You never worked it?

Ans. I never did. I have stood and seen it; stood some hours last Saturday and saw it.

280 X Q. 157. I was coming to that. Did you proceed to Wetherhead & Thompson's last Saturday for the purpose of learning something and coming in here with it?

Ans. No, sir; I was down there on other business.

X Q. 158. Was not that the first time you ever looked at these machines to know anything at all about them?

Ans. No, sir.

X Q. 159. Can you give us an idea whether that cast-iron weight or whatever it is made of weighs one hundred pounds or five hundred pounds; this that has a lever from eight to ten feet long?

Ans. I could not judge of its weight; it might possibly weigh five hundred pounds or more. I do not see what the difference has got to do with this question.

X Q. 160. That is my business.

Ans. I do not propose to take your business out of your hands.

X Q. 161. When you pull on this lever one way you increase the weight and when you pull the other way you decrease the weight, do you not?

Ans. You can push the lever down; of course that presses the weight in; but the lever is not obliged to be stationary; it can be worked up or down or you can pin it down to a definite point if you wish.

X Q. 162. You forget. You are speaking now as an expert and you are not an expert. I want to know if you have learned enough to know that you can lift the weight off of the hides if you please.

Ans. I have observed the machines and they are very simple to operate. You can do the same thing, not being a practical leatherman. Their detail is very simple.

X Q. 163. Answer my question, sir.

Ans. I will, sir.

281 X Q. 164. What I want to know is whether you can take that weight off the hides during the operation of the machine or not.

Ans. You can take it off.

X Q. 165. Did you find that out last Saturday?

Ans. No, sir; I always knew that from the first time I ever saw the machine.

X Q. 166. Now, you say those machines are just like that model.

Ans. I do not say they are like it in every particular.

X Q. 167. In the first place, they have the lever that you have described and that is not in the model.

Ans. I do not see any lever here.

X Q. 168. In the next place, they have clamps to hold the leather to the shaft and that is not in the model.

Ans. I have not looked at that part of it. I can see, perhaps, if the slot will permit me to see (examining the model); I cannot see into the slot.

X Q. 169. Then the next thing is the cribs, and the cribs will open; that you said, did you?

Ans. There are two of them that will open.

X Q. 170. Are there not three?

Ans. I would not say positively whether they all open or not; I think they are all different.

X Q. 171. Are there not four and do they not all open the same way?

Ans. I cannot say, but I think they are all built in a different way—in the running of them; the bars may be further apart and some may be stationary and some not.

X Q. 172. Not what they may be, but what they are; now, is there a single one where the bar is removable?

Ans. Yes, sir; there is.

X Q. 173. That you will swear to?

282 Ans. That I will swear to.

X Q. 174. Are all the bars removable?

Ans. I could not say.

X Q. 175. What is your opinion?

Ans. I recollect one in particular that is loose.

X Q. 176. What makes you recollect it?

Ans. I saw it take a turn.

X Q. 177. What took a turn?

Ans. The bar would turn.

X Q. 178. A roller?

Ans. It would turn a little.

X Q. 179. I am asking whether all of them are cribs that open to let in hides to load and unload the machine or whether some of them are arranged so as to take some of these bars out and load or unload. Are not all those machines hinge-crib machines—every one of them?

Ans. I have seen the bars open and seen them out of the shaft. I know that some of them open. Perhaps they will do, but I would not be sure, because I have never worked on them.

X Q. 180. Is there any way to get the leather out or the hides in except by opening the cage which is about the crib?

Ans. You can remove one of those bars and put hides in and take them out.

X Q. 181. Do they?

Ans. I think they do. They can do so if they wish.

X Q. 182. Do you say that some of these machines are arranged so that the bars are removable in order to take the leather out and put the hides in.

Ans. I never understood for what purpose they were put in except for that.

283 X Q. 183. All you know about that is that you have seen them turn in the journals?

Ans. I have seen them removed where I worked and seen them take the bars out and put them in again. I know they work it successfully and turn out from ten to fifteen sides a day. I counted in one of them on Saturday ten forty-five-pound hides.

X Q. 184. How do you know they turn out ten or fifteen sides a day—on your knowledge or want of knowledge that you have been exhibiting to this jury?

Ans. I stand from where I can see plainly. I have done the green shaving on these hides, and it is the only work I have done at Wetherhead & Thompson's.

X Q. 185. And you can say how many were in one of these machines last Saturday? Did you go there for that purpose?

Ans. No, sir.

X Q. 186. Were you preparing for your testimony on Saturday in that respect?

Ans. No, sir; I never expected to be asked that question.

X Q. 187. You knew you were coming back today?

Ans. Yes, sir; but I did not expect to be asked that question.

Testimony of Herman Royer (Recalled).

(By Mr. LIVERMORE:)

Q. 382. Mr. Royer, you heard Mr. Coupe's testimony about the difficulty that he experienced in trying to operate the vertical machine, did you?

Ans. I heard him.

Q. 383. Have you ever run vertical machines of the kind shown in the model "Ex. 2"?

Ans. I run those machines during the life of the patent.

284 Q. 384. During the life of the patent, which was seventeen years, how many of those machines have you run?

Ans. Three.

Q. 385. How many set-screws were there in each shaft?

Ans. I do not remember more than four.

Q. 386. How did you fasten the hides into the shaft?

Ans. I believe I already stated that before.

Q. 387. It will not do any harm to state it again.

Ans. The weight is kept here (illustrating), just hanging to the cage, and the hides are folded together, and the snoot of the hide is passed into the slot, and the socket wrench is applied at the right angle of the slot and the screw is set down. Then the next hide is put above it; sometimes four, five, or six, if the hides are small. There is no trouble at all in putting them. A person can let them

all in; move out the foot-gear belt that shifts the belt sidewise and let the hides in a little to see if they are all right, and if there is any which is not he can see. If he thinks it is all right he gives the machine another touch and in they go, and in connection with this I want to say Mr. Coupe has stated most explicitly and emphatically that the hides rope, turn over, and twist. I wish to state that when a hide is in proper condition to go into the machine and there is one turn of the shaft made there is no one man or two men capable to twist the hide and make it turn. He could not do it. I am a pretty strong man, and I believe that no other man can do it. It had got to be guarded against, but when they are once in they will just follow, and there is no possibility of making them rope. As to the possibility the second time, they are then quite firm, and the third time is when they go in folded one into the other. A person with a foot on the wheel starts the machine and they
285 go in a little while; if he thinks they want raising up or down he can adjust that, and they go in as smooth as anything can be. There is no practical trouble whatever about it. I have never seen any, and I have had several men running these machines, and everything goes smooth.

Q. 388. Do you ever fasten more than one hide in the same set-screw in the shaft?

Ans. When they go in the first time we do not do it, but the second time it may sometimes happen that we have two in, and we do so. It is just the same thing. It does not make much difference whether it is one or two; it will go any way. The machine is very simple, and the main point about it is the judgment about running it. If a man once knows how to handle it there is no difficulty at all in running it. There has been something said about hides tearing off very often. I was troubled very much at the start. One of the reasons why they did tear was that the hides were not as sound and as strong at the head as in other parts, and the reason was this: When the hides were unhaired and cleaned for drying they were suspended in a high loft, where the wind would blow through; sometimes the hides hung several days and sometimes longer. In fact, in earlier years I did not have a good drying loft. I could not have it. I commenced in a very miserable way. When the hides hang long and do not dry quickly the water in the hide settles down; the snoot dries last, and that will suffer a little if they hang too long that way, and that is one of the causes or one of the troubles that I have been laboring under at the start. Otherwise there is no trouble in running the machine. It is a very simple machine, and as soon as a man once knows the principles he is to watch upon he will soon acquire it, if he is a man of good observation.

286 Q. 389. In the hides hanging in the way you have described to dry, so that the snoot was the last part that dried, what was the injury that came to the snoot?

Ans. Well, it was the same as if you imagine a person hangs meat up for a long time; without decaying it gets a little tender, and I presume the same effect is produced upon the hide. It is not

desirable to have the hides hang very long after they are cleaned; they must be dried comparatively rapidly.

Q. 390. It was that snoot which was fastened into the shaft by the set-screw, was it?

Ans. It was that we used to fasten first; I have always done it that way.

Q. 391. Now, how many men has it customarily taken to fasten a hide onto the shaft of your machine?

Ans. I had one man do the running of the machines for many years. On the new shaft, where I had my new steam power, where I had everything arranged more to suit myself, which I had not then, I had two men to do it, putting more power onto the machine, and I find it is more convenient to have two men, because they will do more work—the machines will do more work.

Q. 392. With respect to fastening the hides in the shaft, is there any practical obstacle to one man fastening a hide into the shaft alone?

Ans. There is no trouble whatever for one man to tend the machine.

Q. 393. How many hides, whole hides, have you turned out in each of your machines on an average per day?

Ans. The turn-out of a machine is from seven to ten hides a day; in fact, ten hides is what a man turns out when he has the hang of the machine; when he is not green.

287 Q. 384. It has been pointed out that Mr. Coupe's machine runs with a shaft and a crib horizontally situated as distinguished from your vertical arrangement. I wish to know of you whether there would be any difficulty in running Mr. Coupe's machine standing vertically, provided the driving apparatus were properly located in the machine.

Ans. There is not one screw that needs changing, so far as I see, in putting the machine of Mr. Coupe's endwise and running, except the fastening of the frame-work to the machine and rigging the gear to it. Otherwise the machine will work just as well without making any change whatever in it.

Q. 385. Do I understand you in your last answer that the machine would run just as well in a vertical position, provided the driving apparatus were changed, as in that form?

Ans. It would run just as well in a vertical position, provided the driving apparatus was properly changed, and the fastening of the machine to the floor.

Q. 386. If your machine were laid down so that the shaft were horizontal and the proper pressure were put against the weight, would it run successfully?

Ans. It would run just as well, successfully; it would run successfully and every bit as well as in that way. Putting it down and fastening it or rigging some purchase at this end, it would work just as well as this will.

Q. 387. Something has been said about the machines at Wetherhead & Thompson's being different in principle from your machine because the cribs were made in two parts, which open for the pur-

pose of getting at the shaft and putting in and taking out the hides. I wish to ask you whether you have seen such machines as that.

Ans. I have seen Wetherhead & Thompson's machines in operation.

288 Q. 388. What is the purpose of having the cribs in two parts to open and shut in this machine?

Ans. The purpose in having this hung on a joint so that the whole crib opens like a hinge—the purpose is to get at the shaft in an easier manner or a quicker manner, as it is supposed.

Q. 389. Does the machine run with the crib open?

Ans. No, sir; it is always closed when it runs.

Q. 390. When the crib is closed does the machine operate any differently from your machine?

Ans. It does not in the slightest.

Q. 391. Won't you explain how you take the hides out of your machine when the machine has finished its work on the hides?

Ans. Well, I have for many years had this cage hoisted up with a windlass—hoisted up here (illustrating), which leaves this in two parts. I move the whole crib up.

Q. 392. You mean the crib is lifted off from the frame?

Ans. Lifted off entirely from the frame. The whole thing goes up. A windlass is rigged at the side of the machine, a roller overhead, and a rope comes down. A person goes to the wheel—the same as a wheel on board a ship for steering. I don't have it that way. I have only simply bars through and hoist that whole thing, lasting, perhaps, five minutes. When the machine is stopped a person turns the machine two and a half or three times, and then it is raised up, and the hides are all loose round here and you can just take them up; unscrew your screw and take them up.

Q. 393. When you raise the crib in that way what becomes of the vertical shaft with the hides around it?

Ans. It stands perfectly free up there. You can go clear round it.

289 Q. 394. It stands without being moved?

Ans. That stands still.

Q. 395. The crib is lifted up off the pile of hides, is it?

Ans. The crib is stripped off, raised up, and then we put the hides in again, and the crib is let down again, fastened to the shaft right opposite this opening, and then the hides are going in again. I would say that the method of Wetherhead & Thompson is an easier way, but it is not a quicker way. If there is any difference in it, they can put the hides in quicker. It is a little more trouble to raise that up, perhaps. There is no practical difference in it.

Q. 396. Mr. Royer, Mr. Coupe testified that the product of his machines was of the same character, as far as its utility was concerned, whether tar was added to the stuffing or was not added to the stuffing, and that the only use of the tar is to make the other ingredients penetrate the rawhide more readily. Is that true or not true, in your judgment?

Mr. THURSTON: Pause there a moment. That is a matter of cross-examination brought out by the defence upon a subject to which there was no attention paid whatsoever by the counsel in the direct. That line of inquiry having been entered upon for their own purposes, I submit that they have no power to impeach it, and that the testimony that they took from the witness they are bound by.

Mr. LIVERMORE: May it please your honor, the testimony that I refer to is testimony that was volunteered by Mr. Coupe and was not called for by the question. I will read the question. I shall have to precede it by another one to get the connection:

"X Q. 289. Now, did you not understand Mr. McMahon to testify exactly that same thing—that up to that time or near that time you were using the fulling stocks, the stuffing wheel, and the
290 pounding machine? Ans. I did not understand him exactly in that way. I did not abandon the use of these things until I took out this patent and got a working machine.

X Q. 290. Did he say that you did? Ans. I perhaps may not have got a correct impression of what he did say. Up to the taking out of these patents I used the various devices that I had at the time for the purpose, and at different times I used tar and at other different times I used no tar. The product was exactly the same with the tar as without the tar, with the exception of the use of it. As far as the utility of the material was concerned it was the same. The simple object of the use of the tar is to make the other ingredients penetrate a little more readily."

Mr. THURSTON: Is that the first examination on the subject of tar, Brother Livermore?

Mr. LIVERMORE: He volunteered it.

Mr. THURTSON: Was there not a previous examination by you about it?

Mr. LIVERMORE: My impression is there was inquiry made as to whether or not tar was used in stuffing by Mr. Wheaton, but this particular piece of testimony as to the function of the tar was volunteered, and whatever effect it may have on the minds of the jury we think we ought to be at liberty to contradict it if it is capable of contradiction.

CARPENTER, J.: The question does not imply contradiction. It seems to be as competent now as it would have been then even if it is for the purpose of contradiction. I cannot tell what the answer will be.

Ans. That is not true in my judgment. The tar does facilitate the fulling of the hides very much, but it is something that I discovered afterwards. The main object of the tar is to prevent moulding of the hides and the rats and dogs and vermine generally attacking the hides. That was the object that led me to experiment upon it. I found it was efficient and perfectly
291 good, better than anything else, perhaps, that I had ever heard of or could think of.

Q. 397. Mr. Royer, I now wish to call your attention to your visit to Messrs. Coupe & Company, at Attleboro', in 1881, which

Mr. Coupe has testified about. Will you state whether or not you told Mr. Coupe what the object of your visit was at that time?

A. Yes, sir.

Q. 398. What did you say to him?

Ans. Well, I went into Mr. Coupe's establishment, at the door near where the stairs go up to the office, and not finding any one around near by I walked up to a man working there, perhaps, say, some ten steps away from me, and asked him for Mr. Coupe. He said he was around about the place; I should go and get him. I would not advance any further, and remained where I was. I said I wished he would call him, and Mr. Coupe came up to me, and I told him who I was. I told him that I had heard that he was making this rawhide lacing, and that he was using machines of my make and using all my inventions, and that I came for the purpose of finding out whether that was so, and I wished that he should let me go through his entire establishment and convince myself. If he would not permit me to do so peaceably I would do it by law. I told him, and he looked at me, and, throwing his arms across, asked me what time I did come from California. That was one of the first questions—the second question he gave me. I told him, "Mr. Coupe, I am not prepared just now to fix the date of my arrival, but when it becomes necessary for me to do so legally I will fix the time;" and at the same time that I answered in that manner Mr. Coupe changed his views, and he promised me right there and then that he would let me see the entire establishment; but he kept
292 me for awhile and we had some conversation about the business and about patents and one thing and another, and then he took me through the entire establishment, and there I counted the machines over several times. It is a very large shop, so large that you have to look sharp that you don't get lost in it; perhaps 150 or 175 feet long; I can't tell; it may be 200 feet. I went round and counted the machines, and I found 60 cribs, and one large machine or crib was about being erected; I saw the men bringing the castings in of the machine. I told him in the course of conversation that ever since I arrived I had been trying to put a padlock on his door—on his establishment. I have been trying to do so to the present time to the best of my ability. But I saw the machines, and he described many of the things, which probably are not proper to express, because I believe that it don't apply in this suit.

Q. 399. State whether or not you expressed any opinion to him as to whether or not his machines infringed your patent.

Ans. Oh, decidedly. I told him that his machines were just identically mine; that I had the automatic motion and the tar and everything—in fact, that he hadn't anything in the shop that didn't come from me.

Q. 400. You say you told him they were the same machines that you had, but my question was whether you told him you regarded his machine as an infringement of your patent.

Ans. I told him that he was infringing my patents, and I would try to put a padlock on his shop. That was strong enough; and then Mr. Coupe was very friendly to me. I complimented him on account

of his large establishment; that he was pushing the business; that he followed my instructions quite closely; that he was turning out good lacing. He took me up to his office and gave me
293 what he said was a list of all his patents, but I found out afterwards they were not, and I wrote them down. I have them yet with me.

Cross-examination.

(By Mr. THURSTON:)

X Q. 401. In the machine such as is represented in the drawings of the patent in suit in this case and in the model that you have before you as a representation of the same how are the hides to be got in and how is the leather to be taken out?

Ans. I have just described how they did get in and how they did get out. I believe you have understood that very plainly. I don't know as I can state it any better.

X Q. 402. Is there any description that you are aware of in your patent of a contrivance for hoisting the crib so as to leave the shaft on the ground for the purpose of loading and unloading the hides from the crib?

Ans. As I remember it, there is not.

X Q. 403. Is there anything shown in that patent by which the loading and unloading of the machine can be accomplished in the way which you have just described?

Ans. Well, these immaterial, small, things I did not believe it necessary to explain. I might have told a person about the thread on the screws and such things. I knew I was in the way of a great invention, and as I understood about getting out patents it was enough to state the essential facts and no more and no less, and the man who got out the patent for me, I believe, has done as well as he knew how and as I knew how. There is the patent, and of course you have your pick at it.

X Q. 404. The question is, is it shown in the patent? That is all of my question which called forth that last answer. It is not
294 shown in the patent, as I understand you to say. Now, is it true that you are using with the machines that you have just spoken of a lever in connection with that weight?

Ans. I do use a lever to hoist this weight.

X Q. 402. How long is that lever?

Ans. It may be 8 feet or 6, I can't tell, or 7; something of that sort. I think 10 feet is longer than it should be, but 6 or 7.

X Q. 406. How is that lever connected with the weight in the machine?

Ans. It runs on there. It can be taken off at any time. It is loose.

X Q. 407. There is, of course, nothing of that shown?

Ans. It is suggested—pressure.

X Q. 408. Now, then, you vary that pressure from time to time, do you?

Ans. I do, according to the man's judgment and as the case

requires, just the same as Mr. Coupe's. He has to have the judgment of a man to set the screw up instead of its being off elsewhere. It is the same with my machine.

X Q. 409. Do you wish to be understood that at the time you visited Mr. Coupe you conducted yourself in the way in which you have just pictured the occasion, as demanding a right to enter his establishment and charging him with infringement?

Ans. I just told him point blank that I intended to see his machines. I would be obliged if he would show them to me peaceably and freely, but if not I should try legal means to see them. I told him that at the start. That was the first word I said—the very first sentence I expressed to him.

X Q. 410. Then I understand you that he yielded to your demand and showed you courteously through the establishment?

Ans. After some little conversation. He then promised
295 that he would show me, not immediately.

X Q. 411. But he did show you?

Ans. He did lead me around.

X Q. 412. You have said he gave you a list of his patents. Did he give you such a list?

Ans. When I was through looking at the shop he stepped with me into his office and took up some papers and dictated to me the dates and years of his patents and I took them down for the purpose of finding out whether they—well, what they amounted to.

X Q. 413. What did you mean by saying that that list was not correct?

Ans. Well, I found out afterwards that there were some patents that he was the owner of that were not in there, but that was so late that all the essential patents were taken out earlier; therefore he may not have had them there or forgotten them. I don't know which. I found out that they were not there.

X Q. 414. All you mean to say is that he had more patents than he gave you a list of?

Ans. He had some patents, as he has since confessed, but on this rawhide business he had a multitude of them, and, having investigated and analyzed and experimented about eight years, he had got a lot of patents. He had kind of run wild on patents.

X Q. 415. Don't be too fast. Mr. Coupe was confined strictly to the questions. Don't run away from the question, Mr. Royer.

X Q. 416. Now, is it true, as you have stated, that you informed him that you should put a padlock on his establishment?

Ans. I just used that very word.

X Q. 417. How many years ago was it you were going to do all this?

Ans. I was there June 8th or 9th, in 1881.

296 X Q. 418. Have you had any correspondence with him since that time?

Ans. No, sir; not that I remember with him personally.

X Q. 419. When you got ready to bring your attachment you brought it, did you?

Ans. Yes, sir.

X Q. 420. And that is the only communication you had with him?

Ans. Well, I think Mr. Livermore & Fish have put an attachment on. I believe they have. That is what I understand.

X Q. 421. And under your directions, I suppose, of course. You mean to say—this is the point of my question—that from the time you left there in June, 1881, you had no communication with Mr. Coupe down to the time you put an attachment for half a million on his whole establishment?

Ans. There has a good deal of testimony been taken. I have done the best of by ability to push the cases, but it is not my fault that I cannot succeed faster: that is the fault of the court or of the machinery of law.

X Q. 422. Why don't you answer my question? Did you have any communication with Mr. Coupe or any correspondence with him from the time you saw him in June, 1881, down to the time you attached everything he had in his establishment?

Ans. There was correspondence between him and the courts, but not with him directly.

Mr. LIVERMORE: You have made a mistake, Brother Thurston. It was only his real estate that was attached. It was nothing in his establishment.

Mr. THURSTON: I was wrong in that. It was his real estate.

X Q. 423. Now, to come back again, do you mean to say that there has been any communication with him on this patent on which this attachment has been brought and which is the foundation of this present suit, by correspondence or otherwise, from 1881, the time when you saw him at Attleboro', down to the time this suit was brought?

297

Ans. The correspondence has gone through the courts. I have never had any personal business with Mr. Coupe. I knew very well that he wouldn't listen to anything else but the force of the law.

X Q. 424. You do not mean to give this jury to understand by the answer that you have just made that any other statement is correct than the one I now make, that statement being that you have had no communication with Mr. Coupe on the subject of a charge of infringement from 1881 down to the time that you brought this suit relating to the present patent?

Ans. What I have done against Mr. Coupe is on record. I state, without modification, that I don't remember writing him a letter. I know I never intended to write him a letter.

X Q. 425. There have been some controversies between you and him on some other patents: that is true enough, isn't it?

Ans. Yes, sir, and between him and Schultz, too. They have had lawsuits, too.

X Q. 426. I am not asking about suits between him and Schultz, but between him and you. There is a controversy pending between you on the stuffing patent, is there not?

Ans. Yes, sir.

X Q. 427. And that stuffing patent relates to the use of coal tar?

Ans. Not coal tar; wood tar.

X Q. 428. And then you have got a controversy with him on the subject of an automatic shipper?

Ans. I have two more lawsuits pending against him, and in fact on almost everything that he took from me.

298 Redirect.

(By Mr. LIVERMORE:)

Q. 429. One question I forgot to ask that I desire to put now, with the leave of the counsel on the other side, and that is, whether in your machines which you have run the set-screws which hold the hides have projected out beyond the surface of the shaft or not.

Ans. Oh, no; they never projected out.

Q. 430. How have you avoided that?

Ans. Well, by countersinking. With regard to my interview with Mr. Coupe I can state that I went out there in a buggy with a young man by the name of Connifee. Mr. Coupe saw me down to the buggy, and he told me what a great invention he had made, and he told me that his own father-in-law, who was a tanner, would not believe that the leather could be made on that plan. That is something that he confessed to me there, showing the novelty of the whole business to me. I said to the young man that he should look sharp, that I might want him some day to testify to that remark of Mr. Coupe. I have not found the young man.

Q. 431. What lace-leather sells for the highest price in San Francisco, yours or Coupe's?

Ans. Well, I get the highest price that has ever been charged. I get 33 cents and 30 cents, and all lace-leather that bears my name is sold for 30 cents, retailed for nothing less than that price now.

Q. 432. What does Coupe's sell for?

Ans. That I really don't know; I can't say; but very likely they sell it for less.

299 Recross.

(By Mr. THURSTON:)

X Q. 433. You just mentioned an incident that occurred when you went out to Mr. Coupe's place with a young man driving a horse and buggy. Is that right?

Ans. Yes, sir.

X Q. 434. Is that the same occasion when you demanded entrance to the establishment?

Ans. It is, sir.

X Q. 435. Did you meet Mr. Coupe in the presence of this young man?

Ans. No, sir; he was taking care of the horse, but I was sitting in the wagon ready for driving off, and Mr. Coupe stood right in front of the wagon and we had some conversation there.

X Q. 436. That was after you had finished your visit and were about to leave?

Ans. That was after I had finished the visit and had taken the patents down. It was the last parting words.

X Q. 437. Now, as I understand you, Mr. Coupe enlarged upon the value of his inventions, extolled the value of his inventions. Is that true?

Ans. Yes; he was enlarging upon his own patents and what he was doing.

X Q. 438. Extolling his inventions for making rawhide. Is that it?

Ans. Yes, sir.

X Q. 439. And he also said to you that his own father-in-law would not believe that he could convert rawhide as he had done. Is that true?

Ans. Yes, sir.

X Q. 440. He was not going to recognize that you had made rawhide before him, as the result of that conversation, didn't you judge?

Ans. Oh, yes; he had known years before that I was in the field.

300 X Q. 441. When he was extolling his invention to you and saying what a novelty it was in making rawhide, so much so that it even surprised his father-in-law, did you then understand that he understood that he was the inventor and claimed to be?

Ans. It looked to me very strange when he knew that I was selling rawhide lacing, and also knew that I had patents out 8 years before he had one out.

X Q. 442. Did you tell this young man to take note of that?

Ans. I told him to remember it.

X Q. 443. Remember what?

Ans. Remember the conversation.

X Q. 444. For what purpose?

Ans. For the purpose, perhaps, of speaking about it and knowing of it.

X Q. 445. Why did you want to have this young man remember that Coupe said he had practically invented rawhide leather, or a practical way of making it, to the surprise of everybody?

Ans. I thought it would be an admission on his side that he thought it was a very novel thing that nobody had ever known about it. I was told all the time that I didn't know anything about the business to attempt to make leather on that plan. They all said it would go back again.

X Q. 446. Were you not very much surprised, just as you were leaving, to have Mr. Coupe assert, as it were, that he was the founder, the inventor, the developer of the rawhide business in the presence of the young man, after what you had told him?

Ans. He didn't say that in the presence of the young man. He said his father-in-law wouldn't believe that it could be done in that way. He didn't say much there, anyway.

X Q. 447. Didn't it surprise you that he could extol him-
301 self in your presence after you had taken him down by the statement that you worked in the same way?

Ans. Well, I thought it was rather strange, but I thought that some people like the eggs they lay themselves best, and cackle over them. I thought he was in the habit, as it was a new business, of telling other people who came there that he was the great inventor, and got in the way of speaking of it.

X Q. 448. That would explain it, but would it not be perfectly consistent with this state of facts that you had never made the slightest suggestion to him that he had ever infringed anything you had or that you had anything that he could infringe in making rawhide?

Ans. Well, he understood very well what I was there for. There was no mistake about my visit there. In fact, I made no secret of it. I spoke to Wetherhead & Thompson that I was going there, and I spoke to Fair Brothers in Pawtucket that I was going there. I don't know what else I can say in this regard.

X Q. 449. He treated you courteously, did he not, and as a gentleman should?

Ans. Yes.

X Q. 450. He was entirely civil in his behavior while you were there?

Ans. Yes, sir.

X Q. 451. He took you freely through the establishment?

Ans. Yes, sir.

X Q. 452. Did you dine with him?

A. No, sir; I didn't eat anything with him or dine with him. I didn't stay long enough. I wouldn't have been invited by him, because I don't think it would be proper for me to be invited by him. I was satisfied with his letting me go through the shop without any trouble.

X Q. 453. Then you went away in the buggy to where you
302 came from?

Ans. Yes, sir.

X Q. 454. Where did you go with your buggy?

Ans. I don't remember where I went. I went right back where I got the buggy to get it out of my charge. That was the first thing.

X Q. 455. Where did you drive?

Ans. The young man took the buggy to the livery stable—no; I went to Wetherhead & Thompson's and stayed there perhaps fifteen minutes. It was late in the evening and I had not time to remain. I went back to the livery stable, as far as I remember.

X Q. 456. Where was the livery stable?

Ans. That was in Pawtucket.

(Adjourned.)

303 EXHIBIT 1.

(2-175.)

DEPARTMENT OF THE INTERIOR,

(Cut.)

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Herman Royer and Louis Royer May 12th, 1868, number 77920, for improved machine for treating hides.

In testimony whereof I, R. B. Vance, acting Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 1st day of November, in the year of our Lord one thousand eight hundred and eighty-six, and of the Independence of the United States the one hundred and eleventh.

[SEAL.]

R. B. VANCE,
Acting Commissioner.

304 (2-155.)

No. 77920.

THE UNITED STATES OF AMERICA.

(Cut.)

To all to whom these letters patent shall come:

Whereas Herman Royer and Louis Royer, of San Francisco, California, have alleged that they have invented a new and useful improved machine for treating hides, and have made oath, the said Herman Royer that he is, and the said Louis Royer of his intention to become, a citizen of the United States; that they verily believe they are the original and first inventor- or discoverer- of the said invention, and that the same hath not, to their knowledge and belief, been previously known or used; have paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are, therefore, to grant to the said Herman and Louis Royer, their executors, administrators, or assigns, for the term of seventeen years from the twelfth day of May, one thousand eight hundred and sixty-eight, the full and exclusive right and liberty of making, using, and vending to others to be used the said invention, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed. [SEAL.]

Given under my hand, at the city of Washington, this twelfth day of May, in the year of our Lord one thousand eight hundred and sixty-eight, and of the Independence of the United States of America the ninety-second.

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

A. M. STOUT,
Acting Commissioner of Patents.

306 UNITED STATES PATENT OFFICE.

HERMAN ROYER and LOUIS ROYER, of San Francisco, California.

Letters Patent No. 77920, dated May 12, 1868.

Improved Machine for Treating Hides.

The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that we, Herman Royer and Louis Royer, of San Francisco city, San Francisco county, State of California, have invented a new and improved machine for converting raw hides into leather; and we do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use our said invention or improvements without further invention or experiment.

The nature of our invention is to provide an improved machine for converting raw hides into leather, of that class which is used for belting, lacings, and other purposes where it is necessary to preserve the native strength and toughness without destroying or impairing the natural fibres or grain of the leather.

In order to accomplish our object, we employ a machine mounted on a suitable frame, having a vertical slotted shaft, to which is attached, at its base, a bevelled wheel between two bevelled pinions upon a horizontal shaft. Around the vertical shaft is placed a row of vertical pins or rollers, held in place by upper and lower rings, one of which is firmly bolted to the frame.

An iron weight or press is employed for crowding the coil of hide down after it has received the forward and back action around the shaft.

To more fully illustrate and describe our invention, reference is had to the accompanying drawings, of which—

(Here follows diagram marked p. 305.)

Figure 1 is a horizontal section through A B.

Figure 2, a side sectional elevation, showing central shaft.

Figure 3, a side sectional elevation.

Figure 4, a horizontal section, showing the hide around the shaft in the circle of pins.

A represents the frame, of any suitable materials, up through which the vertical shaft B passes, having a slot, B', through which the end of the hide is placed, where it is held in place by the set-screws *b b b b*.

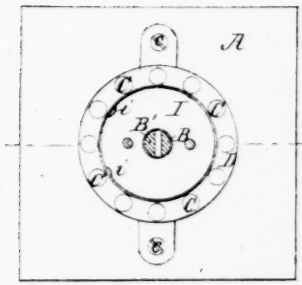
C C C are vertical pins or rollers set in the rings D and D', the lower one, or D', being firmly attached to the frame by bolts *c c*.

H & L. Royer

Preparing Hides.

No. 77,920. Patented May 12, 1868.

Fig. 1.


A
C
C
C
B'
I
B
B
D
C
C
C

A beveled wheel, E, is attached to the vertical shaft B, which is actuated by the bevelled pinions F F placed on the horizontal driving-shaft G. This shaft has a pulley, H, for driving the machine.

An iron weight, I, having an opening through its centre for the vertical shaft, and vertical grooves, *i i*, in it to prevent its turning, is placed upon the inside of the pins or rollers, and, by pressing upon this weight, the hide is compressed edgewise, after the forward and backward stretching or pressing is performed lengthwise.

The operation of our machine is as follows: The end of the raw hide, after it has been deprived of the hair, is introduced into the slot B′, and the set-screws *b b b* turned against it, when motion is imparted to the machine, and the hide is wound tightly around the vertical shaft. When this is accomplished, and sufficient time has elapsed, the shaft is slowly reversed by throwing the other pinion into gear, when the hide commences to uncoil, or doubling back from the shaft, which, with the folding back, and pressing against the pins or rollers, produces the desired result of stretching in one way, compressing, corrugating, or roughing in the opposite direction, when the weight I is placed upon the top of the hide, and is pressed downward, which, in a measure, compensates for the stretching lengthwise.

The hide so operated upon is then treated with oil and tallow in the usual way.

By thus treating the hide in our machine, the leather is rendered very tough, and the fibres or grain are not injured, but imparts to it a rough, corrugated, and seamy appearance, making it more strong and lasting for the purposes designed than by any other machine or process.

Having thus described our invention, what we claim and desire to secure by letters patent, is—

1. The vertical shaft B with a slot, B′, and set-screws, *b b b*, said shaft having a forward and back motion, substantially as and for the purpose described.

2. The pins or rollers C C C set in the rings D and D′, together with the grooved weight I, substantially as and for the purposes described.

In witness whereof, we have hereunto set our hands and seals.

HERMAN ROYER. [L. S.]
LOUIS ROYER. [L. S.]

Witnesses:
C. W. M. SMITH.
GEO. H. STRONG.

307 EXHIBIT A.

Herman Royer, fulled rawhide, belting, lace, rope, No. 437 Brannan street.

SAN FRANCISCO, *March 14th*, 1876.

Mr. Schultz, cor. Easton & Barton Str's, St. Louis, Mo.

DEAR SIR: Thinking that your letter of *of* Febr. 29th may demand an answer, well knowing that your sympathies must naturally incline to where your prospective profits seem to be, I nevertheless submit the following to your consideration, leaving the legal bearing for the future. It is true my brother tried to make fulled rawhide some thirteen years ago. He caused a gentleman to advance money under the allegation that he had made a new invention for which he held a patent. When after a few months' experimenting not one hide was converted into leather thoroughly and when Mr. Blumberg found that things were very questionable, he discovered that L. Royer had stated gross falsehoods respecting originality of invention and possession of a patent and withdrew, less a few thousand dollars. L. R. has never invented anything in this rawhide business. For him to make this assertion in the face of so much evidence to the contrary shows a want of any regard for truth. It was I who after 4 or 5 years took him into the first patent upon a new and improved machine. I had to urge him into citizenship to be competent and I paid the patent fees, for which I hold receipt.

308 All the expenses for my experiments were made with my hard-earned money and were made against the advice of L. R., who never did employ any of his money and who had absolute no faith in my doings, not even when I had been years in the business. I have been since 1867, in this business, struggling improving, & perfecting it to its present state.

L. R. appears since '66 in the S. Fr. directory as a physician at a time when I was a machinist. He has been ever since an apparent indifferent looker-on to my business. He went East to perfect his studies and has maintained himself there on funds coming out of my pocket chiefly. To show my position in this matter I regret to have been compelled to state the above facts, for which there is all the evidence at hand.

I am yours truly, H. ROYER.

309 EXHIBIT B.

(2–175.)

DEPARTMENT OF THE INTERIOR.

(Cut.)

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of an instrument of writing executed by E. L. Royer and Louis Royer March 10th, 1885, and recorded in Liber D 33,

page 194. Said record has been carefully compared with the original and is a correct transcript thereof.

In testimony whereof I, M. V. Montgomery, Commissioner of Patents, have caused the seal of the Patent Office to be [SEAL.] affixed this 29th day of May, in the year of our Lord one thousand eight hundred and eighty-six, and of the Independence of the United States the one hundred and tenth.

M. V. MONTGOMERY,
Commissioner.

310 Liber D 33, p. 194.

Assignment.

Whereas I, the undersigned, Louis Royer, am the owner of an undivided one-half of the following-described letters patent granted by the Government of the United States and the exclusive rights, liberties, and inventions covered thereby as follows, viz:

Letters patent No. 77920, bearing date the twelfth day of May, 1868, and granted to Louis Royer and Herman Royer for an improved machine for treating hides;

And whereas Franz Royer, of New Orleans, in the State of Louisiana, is desirous of acquiring an interest in all of said letters patent:

Now, this indenture witnesseth that for and in consideration of the sum of one thousand ($1,000.00) dollars in hand paid, the receipt of which is hereby acknowledged, I, the said Louis Royer, have sold and assigned and by these presents do sell and assign to the said Franz Royer my undivided one-half interest in the said letters patent, with each and every one of the inventions and improvements therein described, and all rights, liberties, and privileges that were granted and secured to me by the said letters patent and the conveyances, assignments, and grants thereof which have been or hereafter may be made to, for, to and in, and within and throughout the whole of the United States and the territories thereof. I also assign and convey to the said Franz Royer all damages and rights to an accounting to which I am or may be entitled on account of any and all infringements of said letters patent and unauthorized uses of the invention covered thereby by any and all parties up to the date hereof; the same to be held and
311 & 312 enjoyed by the said Franz Royer for his own benefit and for the benefit of his legal representatives for and during the remainder of the term for which said letters patent were granted as fully and entirely as the same would have been enjoyed by me had this sale and assignment not been made.

In witness whereof I have hereunto set my hand and seal, at Halifax, England, on the tenth day of March, one thousand eight hundred and eighty-five.

C. L. ROYER. [SEAL.]
LOUIS ROYER. [SEAL.]

Witness:
EDWARD FREDK WILLIAMS,
Bank Accountant, Joint Stock Bank, Halifax, England.

Recorded July 7, 1885.
25—311

313 EXHIBIT C.

(2–175.)

DEPARTMENT OF THE INTERIOR.

(Cut.)

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of an instrument of writing executed by Franz T. Royer and Franz Royer, March 27th, 1885, and recorded in Liber D 33, page 195. Said record has been carefully compared with the original, and is a correct transcript thereof.

In testimony whereof I, M. V. Montgomery, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 29th day of May, in the year of our Lord one thousand eight hundred and eighty-six, and of the Independence of the United States the one hundred and tenth.

[SEAL.]

M. V. MONTGOMERY,
Commissioner.

314 Liber D 33, p. 195.

Assignment.

Whereas I, the undersigned, Franz Royer, am the owner of an undivided one-half of the following-described letters patent granted by the Government of the United States and the exclusive rights, liberties, and inventions covered thereby as follows, viz:

Letters patent No. 77920, bearing date the twelfth day of May, 1868, and granted to Louis Royer and Herman Royer for an improved machine for making hides:

And whereas Herman Royer, of San Francisco, in the State of California, is desirous of acquiring an interest in all of said letters patent:

Now, this indenture witnesseth that for and in consideration of the sum of one thousand ($1,000.00) dollars to me in hand paid, the receipt of which is hereby acknowledged, I, the said Franz Royer, have sold and assigned and by these presents do sell and assign to the said Herman Royer my undivided one-half interest in the said letters patent, with each and every one of the inventions and improvements therein described, and all rights, liberties, and privileges that were granted and secured to me by the said letters patent, and the conveyances, assignments, and grants thereof which have been or hereafter may be made to, for, to and in, and within and throughout the whole of the United States and the territories thereof. I also assign and convey to the said Herman Royer all damages and rights to an accounting, to which I am or may be en-

titled on account of any and all infringements of said letters patent and unauthorized uses of the invention conveyed thereby by
315 any and all parties up to the date hereof, the same to be held and enjoyed by the said Herman Royer for his own benefit and for the benefit of his legal representatives for and during the remainder of the term for which said letters patent were granted as fully and entirely as the same would have been enjoyed by me had this sale and assignment not been made.

In witness whereof I, the said Franz Royer, have hereunto set my hand and seal, at New Orleans, in the State of Louisiana, on the 27th day of March, one thousand eight hundred and eighty-five.

FRANZ T. ROYER. [SEAL.]
FRANZ ROYER. [SEAL.]

Witness:

WM. B. BARNETT.
J. PENDERNAGEL.

STATE OF LOUISIANA, }
County of Orleans. }

Be it known that on the 27 March, A. D. 1885, before me, John Pendernagel, a notary public in and for the parish of Orleans, State aforesaid, duly commissioned & qualified, personally appeared Franz Royer, otherwise known as Franz T. Royer, to me known as the person named in & who subscribed the foregoing within assignment, & acknowledged that he signed and executed the same for the uses & purposes therein set forth and expressed.

In faith whereof I hereunto set my hand & seal the 27 March, 1885.

[Seal John Pendernagel, Notary Public.]

J. PENDERNAGEL, *Not. Pub.*

Recorded July 7, 1885.
Ex'd: E. L. L.: K. E.

316 EXHIBIT D. COUPE PATENT NO. 199,415, OF JAN. 22, 1878.

318 UNITED STATES PATENT OFFICE.

WILLIAM COUPE, of South Attleborough, Massachusetts.

Improvement in Machines for Boarding or Breaking Rawhides.

Specification forming part of Letters Patent No. 199,415, dated January 22, 1878; application filed November 12, 1877.

To all whom it may concern:

Be it known that I, William Coupe, of South Attleborough, county of Bristol, and State of Massachusetts, have invented a new and improved machine for boarding or breaking rawhides, of which the following is a specification:

In the accompanying drawings,

(Here follows diagram marked p. 317.)

Figure 1 represents a side elevation, partly in section, of my improved machine for boarding or breaking rawhides. Fig. 2 is a plan view of the same, and Fig. 3 a vertical transverse section on line *x x*, Fig. 2, through one of the cribs.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide, for the purpose of treating rawhides in place of tanning them, an improved machine by which the hides may be "boarded" or broken by mechanical means solely, without the employment of moisture and chemical agents, the machine finishing the hides in rapid manner, and requiring but one attendant to supply and remove the hides from the cribs.

The invention will first be described in connection with the drawings, and then pointed out in claims.

Referring to the drawings, A A are a number of cribs, that are arranged equidistant from and radially to a common center. The cribs A are formed of stationary heads B, of disk shape, which are supported on suitable standards. The outer stationary heads B are provided, at some distance from their center, with short guide-slots *a*, and the inner heads with corresponding socket-recesses *a'* for the cross-bars *b*, that extend from head to head, and are adjusted nearer to or farther from the center by set-screws *d*. The heads B are stiffened or braced at their top part by connecting rods or bars of suitable strength, to prevent any springing or spreading of the heads. The cross-bars *b* of the cribs are inserted from the outside through the slots of the outer heads, and placed into the recesses of the inner heads, as shown in section in Fig. 1, and then retained in this position by pivoted end plates or buttons *b'*, that close two adjoining slots, *a*, and prevent the playing out of the cross-bars during the working of the machine.

Each crib A is provided with a revolving center-shaft, C, that turns in bearings of the heads, the shaft being extended beyond the inner head, and carrying a loose bevel-wheel, C', revolved by a worm-gear from a power-shaft with suitable reversing-gear. Each shaft C is thrown in or out of gear with the bevel-gear by a separate clutch mechanism, *e*, outside of the inner heads B. The shaft C is

No 311
Coupe et al
v.
Royer et al
p. 317.

W. COUPE.

Machine for Boarding or Breaking Rawhide.

No. 199,415. Patented Jan. 22, 1878.

Fig. 1.

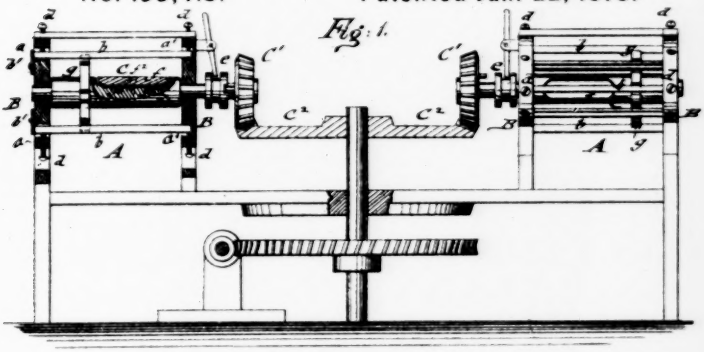


Fig. 2.

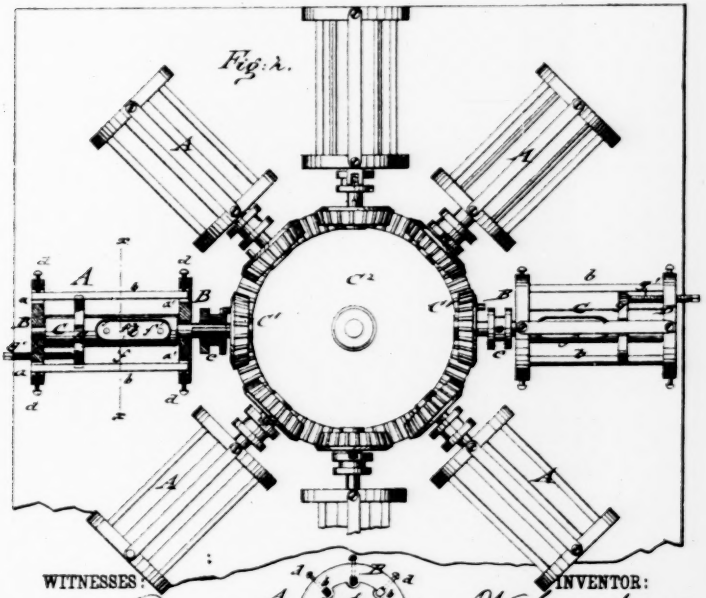


Fig. 3.

WITNESSES:

Chas. Neal

J. W. Scarborough.

INVENTOR:

W. Coupe.

BY Munn & Co

ATTORNEYS.

arranged at that portion between the heads, with detachable clamp-sections *f*, that fit into concave recesses of the shaft, and serve to attach two or more rawhides, according to their size, to the same, and hold them firmly clamped by means of spurs f^1 and fastening-screws f^2. When the rawhides are thus firmly attached to the shaft the same is thrown into gear, and the hides are wound up around the same. A false head, *g*, with recesses for the cross-bars, slides on each shaft, and is adjusted laterally by a set-screw, *g'*, so as to confine the hides into a narrower compass. When the hides are thus wound up on the shaft the cross-bars are tightened down on them, and the next shaft is supplied with hides, and so on until all the cribs are full, and revolve by being thrown into gear with the center bevel-wheel. The pressure of the gradually-tightened cross-bars (which are rounded off at the inside) on the hides produces the tight lapping of hides around the shaft. When the hides have been revolved in the cribs in one direction for a sufficient length of time, the motion of the operating-gear is reversed, and thereby the shafts turned in opposite direction. This causes the forcible reversing of the hides from the shaft to the outside, and as the hides are retained by the cross-bars and the false and permanent heads, the so-called "boarding" or breaking up of the same is obtained by the powerful strain exerted thereon.

When the position of the hides on the shafts is thus changed, and the same are lapped in opposite direction to the former around the shafts, the motion of the driving-gear is again reversed, and thereby the position of the hides changed, in the same manner as before, from the inside to the outside, which reversing or changing is continued until the hides are sufficiently boarded or broken. They are then successively removed from the cribs by throwing one
319 shaft after the other out of gear, and are thus obtained in a tanned state, ready for being cleansed and scraped, the tanning being thus obtained by the exposure of the hides to powerful mechanical action in place of the treatment by chemical agents, as heretofore.

The apparatus is readily attended by one or two workmen that charge or empty the cribs successively, being capable of finishing the hides in a quicker, superior, and more economical manner than by the tanning processes heretofore employed.

Having thus fully described my invention, I claim as new and desire to secure by letters patent—

1. The combination of the outer heads provided with guide-slots *a*, the inner heads with socket-recesses *a'*, the cross-bars *b*, pivoted buttons *b'*, and set-screws *d*, as and for the purpose set forth.

2. The combination, in a crib for breaking rawhides, of the outer slotted and inner recessed heads, with retaining cross-bars supported in the heads, and with pivoted plates or buttons of the outer heads, for securing the rigid position of bars, substantially as described and specified.

WILLIAM COUPE.

Witnesses:
PAUL GOEPEL,
C. SEDGWICK.

320 EXHIBIT E, COUPE PATENT NO. 202,414, OF APRIL 16, 1878.

322 UNITED STATES PATENT OFFICE.

WILLIAM COUPE, of South Attleborough, Massachusetts.

Improvement in Machines for Boarding and Breaking Raw Hides.

Specification forming part of Letters Patent No. 202,414, dated April 16, 1878; application filed March 22, 1878.

To all whom it may concern:

Be it known that I, William Coupe, of South Attleborough, in the county of Bristol and State of Massachusetts, have invented a new and improved machine for boarding or breaking raw hides, of which the following is a specification:

In the accompanying drawing,

(Here follows diagram marked p. 321.)

Figure 1 represents a side elevation of my improved machine for boarding or breaking raw hides; Fig. 2, an end view; and Fig. 3, a vertical transverse section of the same on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to such improvements in the machine for boarding or breaking raw hides for which letters patent have been granted to me heretofore, under date of January 22, 1878, and numbered 199,415, so that the hides may be still more effectively boarded or broken, the cribs in which the hides are worked being capable of exact adjustment to the number and size of the hides, so as to fully control the degree of boarding to which they are to be exposed.

The invention consists of a crib with fixed or permanent heads and sliding and recessed false heads, that are adjusted by means of right and left hand screw-bolts and traversing nuts, and of radially-adjustable cross-bars.

It consists, further, of the combination of these hide-confining parts with a central revolving shaft, having concaved recesses at the middle portion, but at varying relative positions to the heads, and of spurred clamping dogs, fitting the recesses and secured by fastening-screws.

Referring to the drawings, A represents a crib, that is made of stationary or fixed heads B, of disk shape, supported on suitable standards. The stationary heads are provided, at some distance from the centers of the upper disk-shaped portions, with short radial guide-slots *a*, of which the slots of one head are closed, so as to form sockets, while the slots of the other are open, for removing or inserting the cross-bars *b*, that extend from head to head, being adjusted nearer to or farther from the center by radial set-screws *d*, and cushioned by spiral springs *d'*. The heads are stiffened at the

No 3 Coupe et al v. Royer et al } p. 321

W. COUPE.

Machine for Boarding and Breaking Raw Hides.

No. 202,414. Patented April 16, 1878.

Fig. 1

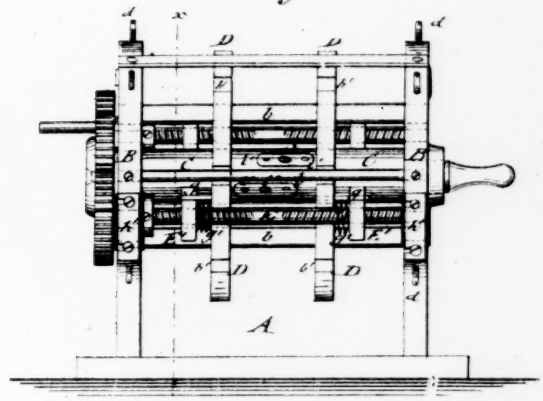


Fig. 2

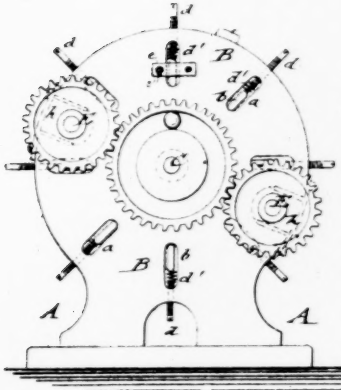
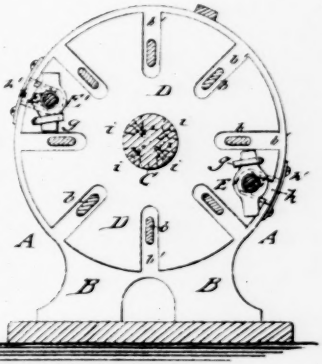


Fig. 3



WITNESSES:

C. Neveux

E. Sedgwick

INVENTOR:

W. Coupe

BY. Munn & Co

ATTORNEYS.

top by connecting rods or bars of suitable strength to prevent any springing or spreading of the heads. The cross-bars *b* are retained, when inserted into the guide-slots and socket-recesses of the heads, by means of pivot-plates *c*, locking over buttons *c'*, so as to prevent the playing out of the cross-bars during the working of the machine.

The crib is provided with a center shaft, C, that revolves in center bearings of the permanent heads B, and is alternately turned by suitable gearing and reversing mechanism, first in one, then in opposite, direction. On the shaft C are arranged, between the stationary heads B, two false heads, D, that are provided with radial recesses *b'* for the cross-bars *b*, the recesses extending from the circumference toward the center.

The false heads D are laterally adjusted on the center shaft C by means of two right and left hand screw-bolts, E, of which one is arranged at each side of the crib, and by traversing nuts E', that are engaged by elbows or hook-bars *g* of the false heads. Between the false heads and the traversing nuts are interposed spiral cushioning springs *g'*, by which the rigid bearing of the false heads on the hides mounted on the center shaft is diminished, and thereby a certain degree of yielding imparted to the same. The cross-bars are cushioned by their spiral springs for the same purpose.

The ends of the right and left hand screw-bolts E are connected at one side by gear-wheels with an intermeshing center crank-wheel, that turns loosely on the center shaft, so as to produce the simultaneous adjustment of the traversing screw-nuts and false heads either toward each other or from each other, according as the hides are to be confined into narrower compass before breaking them or for removing them after the breaking operation is completed. The right and left hand screw-bolts E turn in detachable journal-boxes *h*, that are set into recesses of the stationary heads, and firmly retained therein by pivoted and locking cross-straps *h'*, the boxes and screw-bolts being removed from the heads when the hides are applied to or taken off from the center shaft.

323 The hides are firmly clamped at one end to the middle portion of the shaft C by means of detachable dogs or clamp-sections *i*, that fit into concaved recesses of the shaft and hold the hides firmly by means of spurs i^1 and clamp-screws i^2. The recesses are not all placed around the center portion of the shaft, but so that one recess is nearer to one of the stationary heads, the other nearer to the opposite one, and so on alternately, so as not to weaken the shaft at the middle portion, give a better hold for the clamping-screws, and distribute the hides over the entire lateral surface of the middle portion of the shaft. When the hides are thus attached to and wound on the shaft the false heads are moved up, so as to confine the hides laterally to the required degree, and then the cross-bars inserted into the stationary and false heads. The pressure of the gradually-tightened cross-bars and of the false heads produces the tight lapping of the hides around the shaft. The machine is then set in motion—first in one, then in reverse direction—and thereby the hides broken or boarded in uniform manner all through. The

even distribution of the hides around the shaft by the clamping-dogs, in connection with the yielding action of the false heads and cross-bars, requires less power for working the machine than where the hides are all attached to and bulging at one point of the shaft, and broken up by a rigid crib or cage.

Having thus described my invention, I claim as new and desire to secure by letters patent—

1. A machine for boarding or breaking raw hides, consisting of stationary outer heads, with radially-adjustable connecting cross-bars, inner adjustable and spring-cushioned false heads, and a central revolving shaft, with clamping devices for attaching the hides, substantially as and for the purpose set forth.

2. The combination, with the revolving center shaft and stationary outer heads, having radially-adjustable cross-bars, of recessed and spring-cushioned false heads, adjusted simultaneously by right and left hand screw-bolts and traversing-nuts, substantially as specified.

3. The combination of the stationary outer heads, having detachable journal-boxes and retaining devices, and of the adjustable inner false heads, having hook arms, with right and left hand screw-bolts and traversing screw-nuts, to allow removing and replacing of bolts and nuts for attaching or detaching hides, substantially as set forth.

4. The combination of the central revolving shaft, having concaved recesses in the middle portion, said recesses being placed alternately nearer to one or to the opposite head, with clamping dogs or sections, having retaining-spurs and fastening-screws, substantially as shown and described.

WILLIAM COUPE.

Witnesses:
PAUL GOEPEL,
C. SEDGWICK.

No. 311
Coupe et al.
v.
Royer et al. } 325.

(No Model.)

W. COUPE.

Machine for Boarding and Breaking Raw Hides.

No. 241,308. Patented May 10, 1881.

Fig. 1

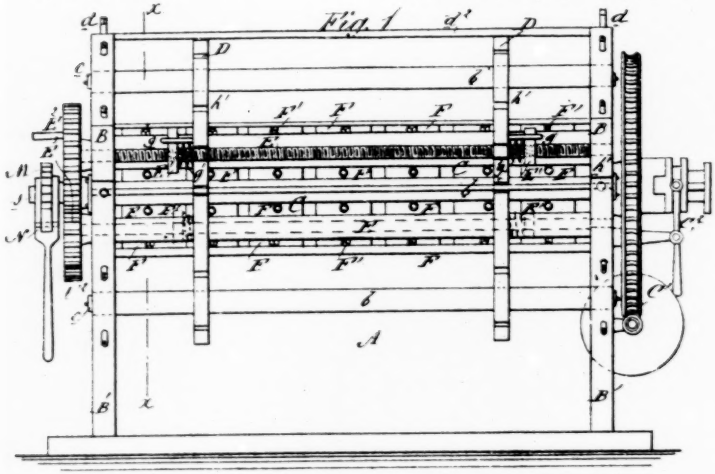


Fig. 2

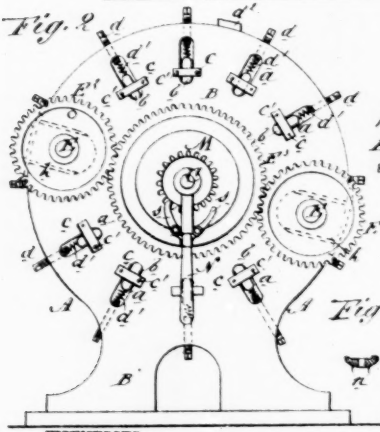


Fig. 3

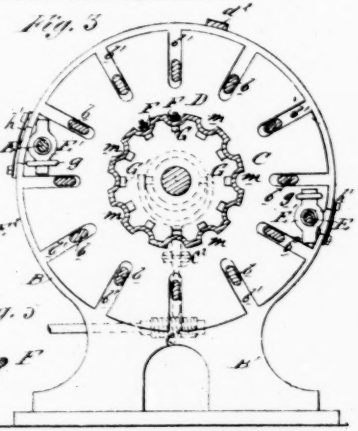
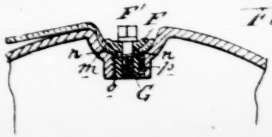


Fig. 4



WITNESSES:

C. Nurse

L. Bridgwick

INVENTOR:

W. Coupe

BY Munn & Co

ATTORNEYS.

324 EXHIBIT F, COUPE PATENT NO. 241,308, OF MAY 10, 1881.

326 UNITED STATES PATENT OFFICE.

WILLIAM COUPE, of South Attleborough, Massachusetts.

Machine for Boarding and Breaking Raw Hides.

Specification forming part of Letters Patent No. 241,308, dated May 10, 1881. Application filed March 31, 1881. (No model.)

To all whom it may concern:

Be it known that I, William Coupe, of South Attleborough, in the county of Bristol and State of Massachusetts, have invented a new and useful improvement in machines for boarding and breaking raw hides, of which the following is a specification:

This invention is designed as an improvement on the machine for boarding and breaking raw hides for which patent No. 202,414 was issued to me April 16, 1878; and its object is to increase the effectiveness of the machine.

In the machine above alluded to short concave recesses were formed about the center portion of the drum, in which the hides were clamped by one end, a single clamp serving for each hide; hence the hides did not spread evenly, the strain upon them was all at one point, and the breaking was not so effective as might be.

This invention consists of a hide-securing drum having parallel grooves or recesses extending throughout its length; and it consists, further, in inserting steel bushings in the bottom of said grooves or recesses, to form more durable sockets for the clamp-screws.

(Here follows diagram marked p. 325.)

Figure 1 is a side elevation of my improved machine with parts removed to exhibit other parts. Fig. 2 is an end view of the same. Fig. 3 is a sectional end elevation on line *x x*, Fig. 1. Fig. 4 is an enlarged sectional elevation of a portion of the hide-securing drum, showing a bushing, clamp, and clamp-screw in position. Fig. 5 is a side elevation of a clamp.

Similar letters of reference indicate corresponding parts.

In the accompanying drawings, A represents a crib, that is made of stationary or fixed heads B, of disk shape, supported on suitable standards, B'. These stationary heads B are provided at some distance from their centers with short radial guide-slots *a*, of which the slots of one head are closed, so as to form sockets, while the slots of the other are open for removing or inserting the cross-bars *b*, that extend from head to head, said bars *b* being adjusted nearer to or farther from the centers of the disks B by radial set-screws *d*, and cushioned by spiral springs *d'*. The heads B are stiffened at the top by connecting rods or bars d^2, of suitable strength to prevent any springing or spreading of said heads B. The cross-bars

b are retained, when inserted in the guide-slots and socket-recesses *a*, by means of pivot-plates *c*, locking over buttons *c'*, so as to prevent the working out of said cross-bars *b* during the operation of the machine.

The crib is provided with a center-drum, C, that revolves in center bearings of the permanent heads B, and is alternately turned by suitable gearing and reversing mechanism, first in one and then in opposite direction, a worm and wheel, C', being preferably the mechanism for transmitting motion to the said drum C, and an ordinary clutch mechanism, C^2, being designed to throw the said drum C in and out of gear with said mechanism C'.

On the drum C are arranged, between the stationary heads B, two false heads, D, that are provided with radial recesses *b'*, for the cross-bars *b*, said recesses *b'* extending from the circumference toward the center of said heads D. These false heads D are laterally adjusted on the drum C by means of two right and left hand screw-rods, E, of which one is arranged on each side of the crib, and by traversing nuts E', that are engaged by elbows or hook-bars *g* of the false heads D. Between the false heads D and traversing nuts E' are interposed spiral cushioning-springs *g'*, by which the rigid bearing of said false head D on the hides secured in the center drum, C, is diminished, and thereby a certain degree of yielding imparted to said heads D. The cross-bars *b* are cushioned by their spiral springs *d'* for the same purpose.

The ends of the screw-rods E are connected at one side by gear-wheels E^2 with an intermeshing center crank-wheel E^3, that turns loosely on the center shaft, C, so as to produce the simultaneous adjustment of the traversing screw-nuts E' and false heads D either toward or from each other, according as the hides are to be confined within narrower compass before breaking them or for removing them after the breaking operation is completed. The screw-rods E turn in detachable journal-boxes *h*, that are set into recesses of the stationary heads B, and are firmly retained therein by pivoted and locking cross-straps *h'*, the boxes *h* and screw-rods E being removed from the heads B when the hides are put on or taken from the center drum, C.

327 The hides are firmly clamped at one end, along the whole extent or margin thereof, in the longitudinal recesses *m* of the drum C, by means of detachable dogs or clamps F, that fit into the concave recesses *m* of said drum C, and hold the hides firmly by means of their spurs *n* and screws F', which latter pass centrally through said clamps F and the hides into the steel bushings G, that are held in corresponding sockets *o* in the drum C by side pins, *p*. By this arrangement the hides are spread over the entire lateral surface of the drum C, between the false heads D. This drum C is preferably hollow and of cast-iron, with a wrought-iron or steel shaft to insure sufficient resistance against the operating strain brought upon it. In machines of ordinary size this drum C is about seven feet long, and seven six-inch dogs or clamps, F, are applied in each recess *m*, there being preferably twelve recesses, *m*, in a drum, C, of sixteen inches in diameter.

When the hides are thus attached to and wound on the drum C the false heads D are moved up so as to confine the said hides laterally to the required degree, and then the cross-bars *b* are inserted into the stationary and false heads B D. The pressure of the gradually-tightened cross-bars *b* and false heads D produces the tight lapping of the hides around the drum C as the latter is revolved. The drum C being set in motion, first in one and then in reverse direction, the hides are broken or boarded in uniform manner all through. The even distribution of the hides along and around the drum C, because of the long grooves or recesses *m*, causes said hides to be broken more thoroughly and evenly than is done in other machines where their points of attachment are more circumscribed.

A special advantage of the bushings C is that they last in good condition for a long time, and when worn can readily be replaced, thus making the drum C more durable.

On one end of the drum C a ratchet, M, and lever and dogs N *s*, respectively, may be placed, whereby said drum C may be slightly turned in either direction, if necessary, for the more convenient attachment of the hides.

In order to facilitate the softening of the hides or leather and keep up a uniform temperature in the crib, it is designed to admit into the hollow part of the drum a jet of steam through a small hole drilled into the center of the drum-shaft, also a corresponding hole on the other end of the shaft to allow the condensed steam to escape.

Having thus fully described my invention, I claim as new and desire to secure by letters patent—

1. In a machine for boarding and breaking hides, the drum C, having parallel recesses *m* extending its whole length, substantially as herein shown and described, whereby the hides may be secured at several points and spread over the entire lateral surface of the drum, as set forth.

2. In a machine for boarding and breaking hides, the combination, with the longitudinally-recessed drum C, provided with sockets *a*, of the bushings G, substantially as herein shown and described, whereby the clamping-screws are held, as set forth, and the durability of the drum increased.

3. In a machine for boarding and breaking hides, the combination, with the recessed drum C, of the adjustable ratchet, lever, and dogs M N *s*, substantially as and for the purpose described.

WILLIAM COUPE.

Witnesses:
WILLIAM P. SHAW,
CHARLES W. SHAW.

328 EXHIBIT L. SCHULTZ PATENT NO. 177,576, OF MAY 16, 1876.

330 UNITED STATES PATENT OFFICE.

JOHN A. J. SHULTZ, of St. Louis, Missouri.

Improvement in Leather Stuffing and Fulling Machines.

Specification forming part of Letters Patent No. 177,576, dated May 16, 1876; application filed April 19, 1876.

To all whom it may concern:

Be it known that I, John A. J. Shultz, a resident of the city of St. Louis, State of Missouri, have invented a new and useful improvement in leather-stuffing and fulling machines, of which the following is a full, clear, and exact description, reference being had to the annexed drawing, making part of this specification, in which—

(Here follows diagram marked p. 329.)

Figure 1 is a plan of the invention; Fig. 2, a side elevation; Fig. 3, a vertical cross-section on the line *x x*, Fig. 1; Fig. 4, a similar section on the line *y y*, Fig. 1; and Figs. 5 and 6, a side and top view, respectively, of the follower.

Like letters indicate like parts.

The present invention relates to an improved construction for stuffing and fulling leather, the principal feature of which is a trough or cylinder arranged horizontally, and containing the stuffing compound in a liquid state, and in which the leather is worked by being attached to a horizontal shaft journaled in the ends of the trough, and having a reciprocating rotatry movement therein. Another feature of the invention is the provision for warming the trough. It further relates to the means employed in reversing the movement of the trough-shaft. It also relates to the interior construction of the trough, by means whereof the leather is more effectually manipulated, and brought in contact with the stuffing.

Referring to the annexed drawing, A represents a trough, preferably of a cylindrical form, and of a size sufficient to receive leather in the condition in which it is usually dressed. It is arranged horizontally, and is supported in any suitable manner. It is, preferably, made in two parts, a lower part, *a*, which is the trough proper, and an upper part or cover, *a'*. B represents a shaft arranged horizontally in the trough, and journaled in the ends thereof, and, preferably, as shown. The shaft is provided with a clamp, *b*, by means of which the piece of leather is fastened to the shaft. C C, &c., represent ribs arranged longitudinally in the shell of the trough, and also in the cover. They form projections for the leather to rub against as it is carried around by the shaft, and thus facilitate the operation. They are, preferably, removable, in order that when worn out these parts can

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Royer et al
Sp 329

J. A. J. SHULTZ.

LEATHER STUFFING AND FULLING MACHINE.

No. 177,576 Patented May 16, 1876.

Fig. 1.

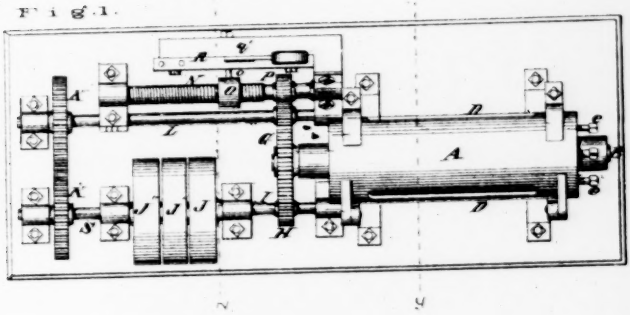


Fig. 2

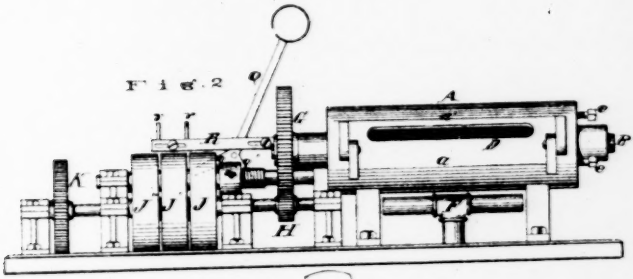


Fig. 3.

Fig. 3.

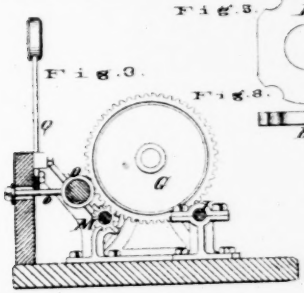
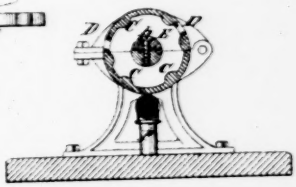


Fig. 4.



WITNESSES.
Charles Pitkin
Saml. S. Boyd

INVENTOR.
John A. J. Shultz.
By Chas. A. Moody
atty.

be easily renewed; and they are, preferably, made of wood, or a material unaffected by the tannin in the leather. The cover is hinged to the trough, and, after the leather is attached to the shaft, it can be closed. There are openings D D, &c., in the cover, through which the operation can be viewed, and through them, also, the stuffing can be introduced. If desired, the trough can be made in one part, and in such case the sides of the trough can be carried up higher than as when a cover is used, and the leather can be inserted through the opening in the top, and where the cover now is. E represents a follower, movable on the shaft B, and held at any point by means of the screws *e e*, &c., and by means of the follower the leather can be pressed laterally. F represents a steam-pipe arranged beneath the trough, by means of which heat is supplied to the bottom of the trough, and to keep the stuffing ingredients, which are of the usual kind, in a liquid condition.

The leather being attached to the shaft, and the stuffing being in the trough, and the cylinder closed, the operation is effected by means of the system of mechanism shown at the left in Figs. 1 and 2, and as follows: Let a belt be running on a pulley, J, which is arranged on a shaft, I, upon the inner end of which is a pinion, H, engaging with a spur-wheel, G, upon an extension of the shaft B. This causes the shaft B to revolve a certain number, say, eight or ten times, and sufficiently to wrap the leather entirely around the shaft. At this time a nut, O, which is arranged on a screw-shaft, N, and which shaft is provided with a pinion, P, engaging with the wheel G, has been caused to travel on the shaft N sufficiently to move a weighted lever, Q, that is pivoted in a standard, *q'*, and in moving it to move a slide, R, and, by means of the guides *r r*, to shift the belt onto a pulley, J''. The motion is then transmitted through the shaft S, gear-wheels K K', shaft L, and pinion M, to the wheel G, causing the latter to rotate in the opposite direction, and until the lever Q has been reversed, when the above movement is repeated, and so on. To operate the lever the nut O is provided with a projection, *o*, which passes between the forked end *q q*
331 of the lever. As the nut moves, the projection strikes first one fork and then the other, and, moving the lever in this manner, the leather is thoroughly worked and kneaded in the stuffing, and the operation is effected in a much shorter time than heretofore has been necessary. By means of the device for warming the trough, the trough and its contents are kept in such a condition as to greatly facilitate the operation.

What I claim is—

1. The combination of the trough A, shaft B, and clamp *b*, arranged and operating substantially as described.

2. The combination of the trough *a*, cover *a'*, shaft B, and clamp *b*, arranged and operating substantially as described.

3. The combination of the trough A, shaft B, follower E, and screws *e e*, &c., substantially as described.

4. The combination of the trough *a* and pipe F, arranged outside and independent of the trough, substantially as and for the purpose set forth.

5. The combination of the trough A, shaft B, wheel G, pinion H, shaft I, and pulley J, substantially as described.

6. The combination of the lever Q, forks *q q*, slide R, nut O, and projection *o*, substantially as described.

7. The combination of the wheel G, pinion P, shaft N, nut O, projection *o*, lever Q, and forks *q q*, substantially as described.

8. The combination of the cylinder A, shaft B, clamp *b*, and ribs C C, &c., substantially as described.

JOHN A. J. SHULTZ.

Witnesses:

CHAS. D. MOODY.
SAML S. BOYD.

No. 31 Conger et al } to 333
Royer et al }

C. L. ROYER.

APPARATUS FOR TREATING HIDES.

No. 173,346. Patented Feb. 8, 1876.

Fig. 1.

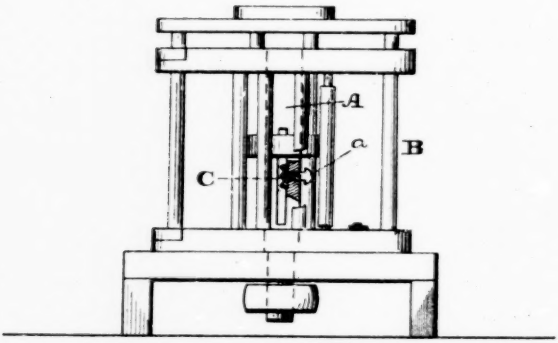


Fig. 2.

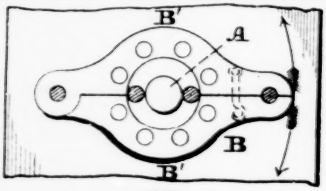
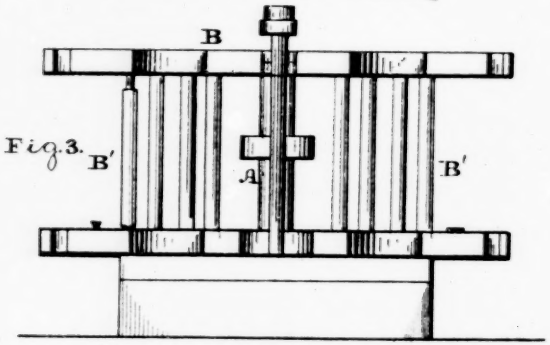


Fig. 3.



Witnesses:
Louis F. Brous
A. P. Grant

Fig. 4.

Fig. 6.

Fig. 5.

Inventor:
C. L. Royer.
by John F. Hyde Chamberlin
Atty

332 EXHIBIT M, ROYER PATENT NO. 173,346, OF FEB. 8, 1876.

334 UNITED STATES PATENT OFFICE.

CHARLES L. ROYER, of San Francisco, California.

Improvement in Apparatus for Treating Hides.

Specification forming part of Letters Patent No. 173,346, dated February 8, 1876; application filed January 13, 1876.

To all whom it may concern:

Be it known that I, Charles Louis Royer, of the city and county of San Francisco, and State of California, have invented a new and useful improvement in apparatus for treating hides; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

(Here follows diagram marked p. 333.)

Figure 1 is a side view of the apparatus embodying my invention. Fig. 2 is a top view, partly sectional. Fig. 3 is a side view, showing the apparatus open. Fig. 4 is a face view of a clamping-disk. Fig. 5 is a rear view thereof. Fig. 6 is a transverse section thereof.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to improvements in means for treating hides, whereby they are converted into leather for the purpose of belting, lacings, &c.

The invention consists of a cage that may be readily opened, so that access is had to the hide on the shaft around which the hide is rolled. It also consists of a clamp for the hide, the same consisting of a disk with a studded face, and pressed against the hide by a set-screw, whereby the hide will be readily and firmly held.

Referring to the drawings, A represents a rotary shaft, to which power is imparted in any well-known manner, and on which the hide is to be wound, so as to be treated and converted into leather, as usually. B represents a cage, which consists of open or slatted work, and it is formed in sections B' B', the frames of which are hinged to each other, so that the sections may be made to open from and close around the rotary shaft A. The sections of the cage will be closed, and the hide rolled on the shaft A, the cage preventing expansion of the roll.

If for any purpose it is required to reach the roll or shaft the sections of the cage are opened, and the roll or shaft is immediately

accessible. When the cage is closed a bolt, latch, or other fastening will be employed to secure the sections.

C represents a clamp for the hide. This clamp consists of a disk with a studded face, and it is fitted in a vertical slot in the shaft *A*, in which slot the hide will be inserted. By tightening a set-screw, *a*, on the disk the clamp will be firmly pressed against the hide, and the latter will be securely held.

Having thus described my invention, what I claim as new, and desire to secure by letters patent, is—

1. The rotary shaft *A*, in combination with the cage *B*, formed of opening and closing sections *B' B'*, substantially as and for the purpose set forth.

2. The clamp *C*, consisting of a disk with a studded face, combined and operating with the slotted shaft and set-screw *a*, substantially as and for the purpose set forth.

CHAS. L. ROYER.

Witnesses:

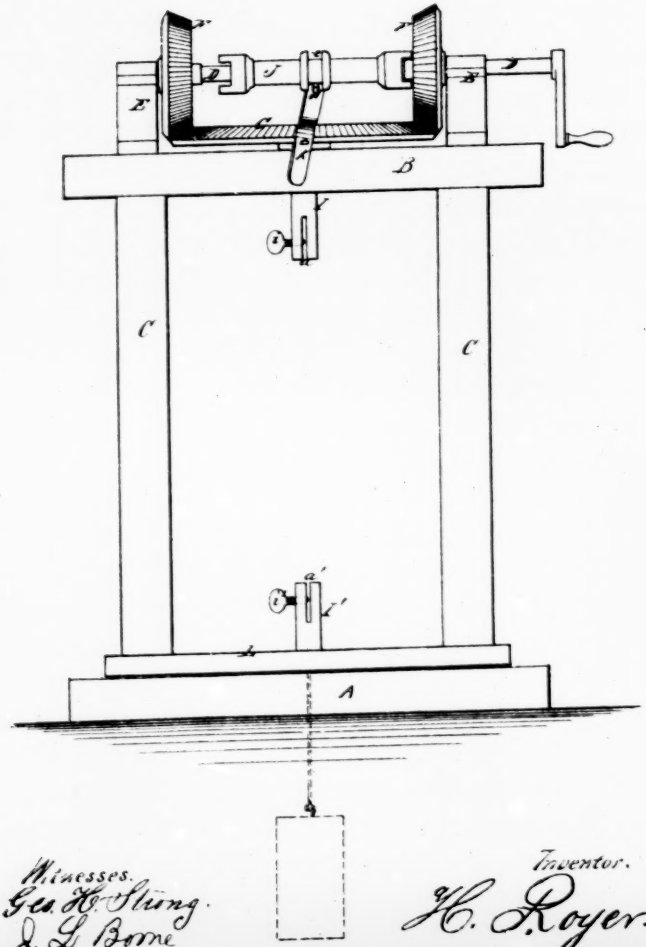
JOHN A. WIEDERSHEIM.
A. P. GRANT.

No 31 Conf. et al } p. 336
H. Royer et al

H. Royer.

Tanning Apps.

No. 91,772. Patented June 22. 1869.



Witnesses.
Geo. H. Strong.
J. L. Borne

Inventor.
H. Royer.

335 EXHIBIT N. ROYER PATENT NO. 91772, OF JUNE 22, 1869.

337 UNITED STATES PATENT OFFICE.

HERMAN ROYER, of San Francisco, California.

Letters Patent No. 91772, dated June 22, 1869.

Improved Device for Treating Hides.

The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, Herman Royer, of the city and county of San Francisco, and State of California, have invented an improved machine for treating raw hides; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains, to make and use my said invention or improvement without further invention or experiment.

My invention relates to an improved machine for converting raw hides, in their dry and rough state, into leather, suitable for belts, lacings, and other purposes, and is an improvement on a patent issued to myself and Louis Royer, for a machine for a similar purpose, said patent being dated May 12, 1868.

This improvement consists in constructing the machine so that the hide, when properly secured to it, may be twisted each way, back and forth, until it becomes soft and pliable, thus rendering it capable of being used for many purposes without in any manner injuring the texture of the leather.

To more fully illustrate and explain my invention, reference is had to the accompanying drawing, forming a part of this specification, which represents a side view of the machine.

Similar letters of reference in the figure indicate like parts.

(Here follows diagram marked p. 336.)

A is the lower portion or foundation of the machine, and B, the upper portion, the two being of wood, and of the same size, and joined together by the vertical posts C C.

Upon the top of the upper portion, B, is a horizontal shaft, D, bearing at each end in boxes on the blocks E E. This shaft carries the two independent bevel-pinions or drivers F F'

The bevelled wheel G is attached to the vertical shaft I, which passes through the upper portion of the frame B, and has a slot, *a*, in its end.

A cylinder, J, surrounds the shaft I, and is arranged to revolve with and slide back and forth on the shaft; and its ends are formed into couplings, which engage with reverse couplings on the pinions, as it is moved from side to side.

336 In the middle of the cylinder J is a groove, *e*, into which a lug, *d*, on the end of the lever K, projects, so that, by moving the lever from side to side, the cylinder is caused to couple with the pinions alternately, thus carrying the follower in an opposite direction each time the cylinder is shifted.

A strong bar, L, moves loosly up and down the vertical posts C C being guided by holes in each end of the bar. From the middle of this bar the shaft I' rises, and is provided with a slot, *a'*, in its end.

The hide to be treated, after it has been deprived of its hair, is secured at each end in the slots *a* and *a'* of the vertical shafts I I', by set-screws *i i'*, and the cylinder J is caused to engage with one of the pinions, and the shaft is set in motion, which causes the hide to be twisted between the two shafts.

A weight is hung below the bar L, which keeps the hide drawn taut as it is twisted, the bar L moving up the vertical posts as the hide is contracted in length.

After the hide has been twisted in one direction, the coupling is changed to the opposite pinion, which causes the shaft I to turn in the opposite direction, unwinding the hide, and again twisting it, and that, without changing the direction of revolution of the horizontal shaft D. This winding and unwinding is continued until the hide has become flexible and soft, after which it is treated with oil or tallow, in the usual way.

By the use of this machine, I am enabled to give the raw hides a twisting motion in either direction alternately, thus thoroughly breaking the fibre, and forming a soft and flexible substance, the operation being quickly performed.

Having thus described my invention,

What I claim as new, and desire to secure by letters patent, is—

1. Converting raw hides into leather, by twisting them spirally in either direction alternately, substantially as described.

2. The device, consisting of a reversing-apparatus, the reversible shaft I, and the weighted sliding bar L, with the stationary shaft I', the whole constructed substantially as herein described.

In witness whereof, I have hereunto set my hand and seal.

H. ROYER. [L. S.]

Witnesses:

WILLIAM STANIFORTH.

J. L. BOONE.

338 The following assignment of errors was filed in the clerk's office of the circuit court December 6, 1889, to be transmitted to the Supreme Court:

Assignment of Errors.

(Filed Dec. 6, 1889.)

And now, in compliance with section 997 of the Revised Statutes of the United States and of the rule of the Supreme Court of the

United States in this regard, the defendants make the following assignment of errors:

1. Because the court erred in its instructions to the jury as to the proper construction of the plaintiffs' patent and the claims thereof and as to the scope of the plaintiffs' patent as covering the defendants' machine, as set forth in the first exception.

2. Because the court erred in its instructions to the jury in a matter of law involved in determining the question of infringement on the subject of the effect of the substitution of devices in the defendants' machine different from the devices specified in the plaintiffs' patent, as set forth in the second exception.

3. Because the court erred in its instructions to the jury as to the rule for the determination of what does constitute a mechanical equivalent in a machine and as to the application of the doctrine of mechanical equivalents to the plaintiffs' patent, as set forth in the third exception.

4. Because the court erred in its instructions to the jury as
339 to the proper course to be observed in constructing a working machine from letters patent for the purpose of determining whether it be or be not an operative machine in the sense of the patent law, as set forth in the fourth exception.

5. Because the court erred in its instructions to the jury on the subject of the rule incumbent upon the plaintiff in the proof of damages in an action for infringement of letters patent, as set forth in the fifth exception.

6. Because the court erred in its instructions to the jury upon the duty of the plaintiff in a suit for the infringement of letters patent to give notice that *his* invention is patented to lay the foundation for the recovery of damages, as set forth in the sixth exception.

340 *Clerk's Certificate.*

UNITED STATES OF AMERICA, } ss:
Massachusetts District, }

I, John G. Stetson, clerk of the circuit court of the United States for the first circuit and district of Massachusetts, certify that the foregoing is a true copy of the record of said circuit court in the cause entitled No. 2542, law docket, Herman Royer *et al.*, plaintiffs, *v.* William Coupe *et al.*, defendants, determined in said circuit court, and of all proceedings therein and of the assignment of errors filed therein.

Seal of the Circuit Court, Massachusetts.

In testimony whereof I hereunto set my hand and affix the seal of said circuit court, at Boston, in said district, this first day of October, in the year of our Lord one thousand eight hundred and ninety, and of the Independence of the United States the one hundred and fifteenth.

JOHN G. STETSON, *Clerk.*

341 *Bond on Writ of Error.*

Know all men by these presents that we, William Coupe, of South Attleborough, in the county of Bristol and State of Massachusetts, and Edwin A. Burgess, of the city and county of Providence, in the State of Rhode Island, as principals, and George C. Nightingale and Benjamin W. Persons, both of said Providence, as sureties, are held and firmly bound unto Herman Royer, of San Francisco, in the State of California, and Louis Royer, of Halifax, England, in the full and just sum of twenty-five thousand (25,000) dollars, to be paid to the said Herman Royer and Louis Royer, their certain attorney, executors, administrators, or assigns; to which payment, well and truly to be made, we bind ourselves, our heirs, executors, and administrators, jointly and severally, by these presents.

Sealed with our seals and dated the fifth day of December, in the year of our Lord one thousand eight hundred and eighty-nine.

Whereas lately, at a circuit court of the United States within and for the district of Massachusetts, holden at Boston on the 26th day of November, A. D. 1889, in a suit depending in said court between the said Herman Royer and Louis Royer, plaintiffs, and William Coupe and Edwin A. Burgess, defendants, judgment was rendered against the said defendants for the sum of twenty-one thousand four hundred and fifty-two dollars and twenty-five cents, and the said defendants having procured a writ of error and filed a copy thereof in the clerk's office of the said court to reverse the judgment in the aforesaid suit, and a citation directed to the said plaintiffs, citing and admonishing them to be and appear at a Supreme Court of the United States to be holden at Washington on the second Monday of October next:

Now, the condition of the above obligation is such that if the said plaintiffs shall prosecute their said writ of error to effect and answer all damages and costs if *he* fail to make their plea good, then the above obligation to be null and void; otherwise to remain in full force and virtue.

WILLIAM COUPE. [L. S.]
EDWIN A. BURGESS. [L. S.]
GEORGE C. NIGHTINGALE. [L. S.]
BENJAMIN W. PERSONS. [L. S.]

Signed, sealed, and delivered in presence of—
WILMARTH H. THURSTON.
SYLVESTER J. MURPHY.

Approved.
G. M. CARPENTER, *J.*

A true copy of the bond taken by the judge at the time of allowing the writ of error named in said bond, which bond is on file in the office of the clerk of the circuit court of the United States for the first circuit and district of Massachusetts.

Attest: JOHN G. STETSON,
Clerk U. S. C. C., Mass. Dist.

342 *Citation.*

THE UNITED STATES OF AMERICA:

To Herman Royer, of San Francisco, in the county of San Francisco and State of California, and a citizen of said State, and Louis Royer, of Halifax, in England, Greeting:

You are hereby cited and admonished to be and appear at a Supreme Court of the United States, to be holden at Washington on the second Monday of October next, pursuant to a writ of error filed in the clerk's office of the circuit court of the United States within and for the district of Massachusetts, wherein William Coupe and Edwin A. Burgess, copartners under the firm name and style of William A. Coupe & Company, both citizens of the Commonwealth of Massachusetts and of that part of Attleboro' called South Attleboro', in the county of Bristol, in the district of Massachusetts, are defendants and plaintiffs in error and you are plaintiffs and defendants in error, to show cause, if any there be, why judgment rendered against the said plaintiffs in error, as in the said writ of error mentioned, should not be corrected and why speedy justice should not be done to the parties in that behalf.

Witness the Honorable George M. Carpenter, district judge of the United States for the district of Rhode Island, duly assigned to hold said circuit court, this fifth day of December, in the year of our Lord one thousand eight hundred and eighty-nine.

G. M. CARPENTER,
District Judge of the United States for the District of Rhode Island.

Due, sufficient, and legal service of the foregoing citation is accepted.

LIVERMORE, FISH & RICHARDSON,
For Plaintiffs, Def'ts in Error.

Endorsed on cover: Case No. 14,357. Massachusetts C. C. U. S. No. 311. William Coupe and Edwin A. Burgess, copartners as William A. Coupe & Company, plaintiffs in error, *vs.* Herman Royer and Louis Royer. Filed October 20, 1890.

Office Supreme Court U. S.
FILED.
OCT 26 1894
JAMES H. McKENNEY,
Clerk.

Supreme Court of the United States,

OCTOBER TERM, 1894,

No. 53.

WILLIAM COUPE AND EDWIN A. BURGESS,
COPARTNERS AS
WILLIAM COUPE & COMPANY,

Plaintiffs in Error,

vs.

HERMAN ROYER AND LOUIS ROYER.

BRIEF FOR PLAINTIFFS IN ERROR.

EDMUND WETMORE,
WILMARTH H. THURSTON,
For Plaintiffs in Error.

PROVIDENCE:
E. A. JOHNSON & CO., PRINTERS, 57 WEYBOSSET ST.
1894.

Supreme Court of the United States

WILLIAM COUPE AND EDWIN A. BURGESS, COPARTNERS AS WILLIAM COUPE & COMPANY, PLAINTIFFS IN ERROR, *vs.* HERMAN ROYER AND LOUIS ROYER.	OCTOBER TERM, 1894. No. 53.

BRIEF FOR PLAINTIFFS IN ERROR.

This was an action at law for damages by reason of the alleged infringement of Letters Patent of the United States, No. 77,920, dated May 12, 1868, granted to Herman Royer and Louis Royer, for an "Improved Machine for Treating Hides."

The patent expired on May 12, 1885, and the writ in this case is dated July 14, 1885, (Rec. p. 3) the action having been thus brought very shortly after the expiration of the patent. The *ad damnum* was placed at the extremely large sum of *five hundred thousand dollars* (Rec. p. 3), and the real estate of the defendants (the plaintiffs in error) attached for that amount.

The case was tried before His Honor Judge Carpenter, United States District Judge for the District of Rhode Island, then holding the Circuit Court for the District of Massachusetts, and a jury, and resulted in a verdict for the plaintiffs (the defendants in error), the jury assessing

damages in the sum of eighteen thousand dollars, said verdict being rendered on November 10, 1886. Rec. p. 4.

A bill of exceptions was duly presented to and allowed by the presiding judge, the same having been allowed and filed on May 18, 1887, before entry of judgment. Rec. p. 5.

Thereafter, and on November 26, 1889, judgment was duly entered on the verdict for the sum of $21,288.00 damages and $164.25 costs. Rec. p. 5.

In this connection it may perhaps be stated, although the facts do not appear in the record, that the cause of the delay in entering judgment was do to a motion on the part of the plaintiffs below (the defendants in error) that the amount of damages be trebled by the court under the provisions of Sec. 4919 of the Revised Statutes of the United States, which said motion was fully argued, and after being held for advisement by the court was denied.

Upon the entry of judgment, the defendants below sued out their writ of error to this Court, Rec. p. 1, and on December 6, 1889, in compliance with Sec. 997 of the Revised Statutes of the United States, duly filed with the Clerk of the Circuit Court an assignment of errors to be transmitted to this Court. Rec. p. 210.

The bill of exceptions, together with the portions of the charge of the court to the jury excepted to, will be found at pages 5-15 inclusive of the Record.

The assignment of errors referred to are printed at pages 210, 211 of the Record.

Statement of the Case.

For a proper understanding of the case and of the questions involved it will be necessary to explain:

1. The history and nature of the invention described and claimed in the Royer patent.

2. The character of the Royer patent.

3. The development and construction of the defendants' alleged infringing machine; and—

4. The character of the redress sought in the present action.

The History and Nature of the Royer Invention.

The Royer patent in suit was procured by Herman Royer and Louis Royer as joint inventors, and purports to be based upon a joint invention of these two men. For a better understanding of the history of the origin and development of the machine shown and described in this Royer patent, a brief explanation of the construction and operation of the patented machine will be desirable.

The specification and drawings of the patent will be found at page 190 of the Record. The machine of the patent is a machine for treating hides, and more particularly for mechanically softening rawhides. The machine is shown and described in the patent as a *vertical* machine, and, as will be pointed out more fully hereafter, especial emphasis is given throughout the specification to the verticality of the machine. The machine comprises:—

1. A vertical slotted shaft provided with set-screws, which said shaft is capable of being revolved by suitable mechanism first in one direction and then in the other;

2. A circularly arranged set of pins or rollers set in rings or fixed heads, the same constituting a vertical cylindrical cage or crib surrounding the vertical slotted shaft and:—

3. A weight adapted to be inserted within the crib or cage at its uper end, said weight being provided with a central aperture for the passage of the upper end of the vertical slotted shaft.

The operation of this machine, as described in the specification of the Royer patent, is as follows: The end of the rawhide to be softened is inserted in the slot of the vertical shaft and clamped therein by the set-screws. The weight being at this time out of the machine, the shaft is then revolved and the hide is wound tightly upon said shaft, forming a roll or coil thereon, and being held in this form by the surrounding cylindrical cage. After the hide has been thus wound upon the shaft, the shaft is reversed and revolved in the opposite direction, which has the effect to rewind or recoil the hide upon the shaft in a reverse direction, this reverse winding commencing at the inner end of the coil, the outer circumference of the coil being pressed against the pins or rollers of the surrounding cage. This winding and rewinding of the hide upon the shaft, produced by periodically reversing the direction of revolution of the shaft, is repeated as many times as may be desired. Then *after this winding and rewinding operation has been completed*, which operation is supposed, in addition to the softening effect produced, to give a certain amount of lengthwise stretch to the hide, the weight is placed in the machine, (i. e. in the upper end of the crib and upon the top of the coil of hide) and pressed upon. The purpose of thus inserting the weight and pressing upon it is stated in the specification to be to compress the hide edgewise, to compensate, in a measure, for the stretching lengthwise, and to give to the leather a rough, corrugated and seamy appearance.

It will thus be seen that while the patent describes three separate elements, viz: (1) the vertical slotted shaft; (2) the surrounding cage or crib; and (3) the weight, these three elements do not, in the operation of the machine, all co-operate together, but instead in the operation of the machine only two of these elements co-operate together, viz., the vertical slotted shaft and the surrounding cage or

crib, and then after the operation of the machine has been completed, two other of the three elements, viz., the weight and the cage or crib, are made to co-operate in a secondary hand operation, the crib serving to hold the coil of hides in place while the weight is pressed upon them. It is plain that in this last operation the shaft peforms no function, and that the operation of pressing upon the coil of hides with the weight would be precisely the same whether the shaft be present or absent.

In accordance with the above analysis of the patented machine and its described operation, it will be found, that the patent contains no claim for a combination of the three elements referred to, viz., shaft, cage, and weight, and in fact contains no claim in terms for the combination of shaft and cage, but instead contains but two claims, the *first* of which is for the vertical slotted shaft *per se*, and the *second* of which, is for the combination of the weight and the cage.

Such being the character of the machine shown and described in the Royer patent, the history of the origin and development of said machine, as elicited by the cross-examination of one of the patentees, Herman Royer,—the other patentee, Louis Royer, not appearing as a witness in the case,—is as follows:

Prior to Herman Royer's having anything to do with the machine, or for that matter with leather working machinery of any kind, Louis Royer, in 1863 or earlier, conceived the idea of a machine embodying a central rotating shaft and a surrounding cage or crib as a machine for mechanically softening rawhide, and constructed and operated such a machine. Royer's Dep. X Int. 231-243, Rec. p. 40; Int. 325, p. 50.

It was not new at the time of this conception on the part of Louis Royer to soften rawhide mechanically, or to convert hides into leather by mechanical action in connec-

tion with grease or stuffing. The preparation of leather in this manner dates from the very earliest times. It was the customary practice of the ancients and of barbaric tribes to cure hides and skins by rubbing upon them the brains of the animal or other grease or greasy matter, and then beating and working them mechanically until they became soft and converted into leather adapted for practical uses.

Ordinary glove leather, as it has been prepared for very many years, is likewise mechanically softened rawhide, being cured and prepared without tanning, and simply by softening by mechanical means and the working in of oil or grease. Coupe's Dep., Int. 11-14, Rec. p. 9.

So also did there exist, prior to Louis Royer's conception, various machines adapted to act upon rawhide so as to soften it by mechanical action, and which were commonly used to mechanically soften leather. Among such machines was one known as a stuffing wheel, a very old machine used to work grease or stuffing into a hide. Another old machine was one known as a fulling mill or fulling machine, similar to that used in textile factories. Such fulling machine was provided with beaters or hammers upon the ends of reciprocating levers, which operated to beat and soften the hides. These fulling machines had been used for softening leather, for very many years. Fairfield's Dep., X Ints. 32-35, Rec. p. 64; Coupe's Dep., Int. 7, p. 79; Ints. 159-163 pp. 98, 99.

Louis Royer did not therefore invent any new kind of leather or any new product. Neither did he invent any new process of manufacturing leather or of converting hides into leather. Neither was he the first to invent or devise a machine for softening hides mechanically. What he was the first to do, so far as the record shows, was to devise a machine for mechanically softening hides embodying a central rotating shaft to which the end of a hide was to be secured and upon which the hide could be coiled, in

combination with a surrounding cage or crib to confine the coil of hide during the revolution of the shaft, first in one direction and then in the other.

Such a machine, Louis Royer, as the record shows, did devise, construct and operate. This machine of Louis Royer's was a *horizontal*, instead of a vertical machine, (Royer's Dep., X Int. 240, Rec. p. 40), and the bars composing the cage or crib, instead of being set or fixed in the supporting heads were placed in slots formed in said supporting heads, and so that said bars were movable or adjustable radially toward or from the central shaft or axis of the crib, a chain being placed around the bars composing the crib at or near each end thereof to assist in holding said bars in position.

This Louis Royer machine did not have any weight, or anything to press upon the end of the coil of hides, but it is admitted by Herman Royer that said Louis Royer machine had everything that is in the machine of the patent except this pressure weight. Royer's Dep., X Int. 244, Rec. p. 40.

It was not until 1867, some four years or more after the construction of this Louis Royer machine, that Herman Royer had anything to do with the matter, at which time Herman Royer, having seen and examined his brother's machine, joined with Louis Royer in undertaking to make some improvement upon it. Royer's Dep., X Int. 245-248.

What they did in the way of improving the old Louis Royer machine, as testified to by Herman Royer himself, was this. They first made the bars composing the cage fixed in the supporting heads instead of being radially movable therein as they had been in the Louis Royer machine. Royer's Dep., X Int. 254-257, p. 41. Then they changed the machine from a horizontal machine to a vertical machine, and adopted the use of the weight, these

two latter changes being plainly devised for attaining one and the same end, that is to say, the machine was changed from a horizontal to a vertical machine, *for the purpose of enabling the weight to act.* Royer's Dep., X Int. 258-263, p. 41, 42.

Thus it appears from the testimony of Herman Royer, as thus far considered, that prior to the production of the machine of the patent there existed, and had been used, a machine for mechanically softening rawhide having a central rotating shaft and a surrounding cage or crib, such machine being the sole invention of Louis Royer; that subsequently Herman Royer and Louis Royer jointly devised the machine of the patent *as an improvement upon the prior Louis Royer machine;* and that the characteristic features of difference in this improved machine consisted, first, in making the bars of the surrounding cage fixed, instead of radially movable, and, secondly, in constructing the machine as a vertical, instead of a horizontal machine, and employing a weight as a supplemental or auxiliary feature, to assist in performing a secondary operation subsequent to the main and mechanical operation of the machine.

Even this improved machine, this joint product of the efforts of Herman Royer and Louis Royer to improve the prior Louis Royer machine, is a comparatively crude and unsatisfactory machine, a machine very liable to tear and injure the hides and with which it is very difficult, if possible at all, to do really good work, i. e., to thoroughly and uniformly soften a hide throughout its entire area, which is the object desired to be attained with these hide softening machines. That the improved patented machine was thus ineffective and incapable of doing good work is proven by the testimony of Herman Royer himself, for he admits, in attempting to explain why it was that from 1867 to 1871, a period of four years, his business did not pay

expenses, that he "*did not turn out good goods.*" Royer's Dep., X Int. 276, p. 44.

And again, it happened that in another suit Royer had testified at length as to the operation of this improved machine, and as to the difficulties which he had with it. His attention was called to this testimony, and he was asked if he gave it, and he admitted that he did. Royer's Dep., X Int. 304, p. 47.

As this testimony of Royer contains such a full and complete account of his experiences with the machine, it will be quoted here at length. The testimony is as follows, Rec. pp. 51, 52:-

> "While I was so using the machine and reversing it by hand it often happened that the unwinding and rewinding of the hides would become irregular and the bending or doubling backwards would cease. In such cases the hides would sometimes turn around bodily inside of the cage. Sometimes they would so turn bodily for a while, and then again resume their action of unwinding and rewinding. At other times they would wedge tightly in the cage or drum and refuse to move in any direction. In such cases the edges or ends of the hides that were fastened to the revolving shaft would be torn from their fastenings. I have had the edges of the hides, where they were fastened to the revolving shaft, torn off from the hides many hundreds of times. In such cases the machine had to be stopped and drum taken apart in order to get the hides out. The attendant who shifted the clutch to cause the machine to reverse kept constant watch, and as soon as he discovered the least irregularity in the operation of the machine he would instantly either stop the machine or reverse its motion. Sometimes the regular working of the machine could be restored by thrusting a stick between the bars of the drum in such a way as to catch the outside hide between the end of the stick and one of the stationary bars of the cage or drum, and so stop the entire mass of hides from being carried around bodily inside of the drum by the shaft."
>
> "Whenever the hides turned around in a body with the shaft the operation of unwinding and rewinding ceased, and all benefit of the revolutions so occurring would be lost, and the shaft would therefore have to revolve more times in the

direction in which it was then running before being again reversed, than it would when no irregularities occurred. At other times, after the hides had become partly softened by being worked in the machine, they would pack so tightly in the drum while they were being treated that they would become very hot, and unless the shaft was quickly stopped the hides would be overheated and spoiled."

"For these reasons it did not for a long time seem to me to be practicable to attach to the machine an automatic reversing apparatus."

That Royer did not turn out good goods with the machine, as admitted by himself, and that some of the goods turned out by him were so imperfectly softened and in such bad condition as to be absolutely unsalable, is further proved by the testimony of Joseph Meier, at one time a salesman for the party in New York who attempted to handle and sell Royer's leather, and a witness called on Royer's behalf. Mr. Meier testifies, Int. 17, Rec. p. 163, that "there was some of his [Royer's] leather that remained in the place made out of Calcutta or East India kips, and that remained on hand *because it was not good enough to sell. It was too brittle.* We did not dare to sell it at the time."

While the trouble which Royer had in manufacturing good leather with his machine was undoubtedly due in a measure to ignorance on his part,—an ignorance due, not as he seeks to give the impression, to the fact that the manufacture of rawhide leather was a new manufacture, but to the fact that he had no experience whatever as a leather worker,—such trouble and difficulty was due in a still greater measure, as we shall show more fully hereafter, to the character of the machine with which he was working, and particularly to the fact that the machine was a *vertical* machine and had the end pressure applied by a weight and at only one end of the coil of hides.

The Character of the Royer Patent.

An examination of the patent itself, Rec. p. 190, applied for and procured at the time, conforms to and corroborates the history of the patented machine as above set forth. Thus the patent states at the outset that the nature of the invention is "to provide an *improved* machine." Here is a direct statement that the patent relates, not to a primary invention or a pioneer machine, but instead to an *improved* machine.

The specification then proceeds:—

> "In order to accomplish our object, we employ a machine mounted on a suitable frame, having a vertical slotted shaft, to which is attached, at its base, a bevelled wheel between two bevelled pinions upon a horizontal shaft. Around the vertical shaft is placed a row of vertical pins or rollers, held in place by upper and lower rings, one of which is firmly bolted to the frame."
>
> "An iron weight or press is employed for crowding the coil of hide down after it has received the forward and back action around the shaft."

The statements above quoted plainly show that at the time of applying for and procuring their patent the patentees considered their *joint* invention to consist in a *vertical* machine, as distinguished from the prior *horizontal* machine which was the *sole* invention of Louis Royer. That they should thus consider the verticality of the machine to constitute one of the essential features of their joint invention was directly in accord with the facts, for the change from a horizontal machine to a vertical machine was one of the changes which they made when they jointly proceeded to improve the prior Louis Royer machine, and it was only with a vertical machine that the weight which they proposed to employ would be effective.

That the patentees did thus consider the verticality of the machine as a characteristic feature of their *joint improved* machine is further emphasised by the repeated use

of the word "vertical" throughout the specification and claims of the patent, as applying to the shaft, to the pins or rollers composing the cage, etc., and by the entire absence of any hint or suggestion that the invention might reside, or be employed, in a horizontal, or in any other than a vertical, machine. Thus it will be found that this word "vertical" is employed no less than *ten* times in the specification and claims, and in many of these places there was no occasion for using any qualifying word whatever, except for the fact that verticality was regarded as of the essence of the invention.

The quotation above made from the specification also refers to the change made by the joint patentees in making the bars or pins composing the cage fixed in their supporting heads or rings, instead of being radially movable or adjustable therein, as in the prior Louis Royer machine, attention being directed to this fact by the statement that the vertical pins or rollers are "*held in place* by upper and lower rings."

And finally attention is directed to the remaining change made by the joint patentees in improving upon the prior Louis Royer machine, viz., to the employment of a weight "for crowding the coil of hide down *after it has received the forward and back action around the shaft.*"

That the weight performs no function in the operation of the machine, i. e., during the revolution of the shaft, and that as a matter of fact the weight is not even to be in place in the machine at that time, is evidenced by further statements in the specification. Thus it is stated, Rec. p. 191:

> "An iron weight I, having an opening through its centre for the vertical shaft, an vertical grooves, *i*, *i*, in it to prevent its turning is placed upon the inside of the pins or rollers, and by pressing upon this weight, the hide is compressed edgewise, *after the forward and backward stretching or pressing is performed lengthwise.*"

And again in describing the operation of softening a hide, and after explaining the manner of attaching the hide in the slot of the vertical shaft and of winding the hide around said shaft, the specification says:

> "When this is accomplished, and sufficient time has elapsed, the shaft is slowly reversed by throwing the other pinion into gear, when the hide commences to uncoil, or doubling back from the shaft, which, with the folding back, and pressing against the pins or rollers, produces the desired result of stretching in one way, compressing, corrugating, or roughing in the opposite direction, when the weight I is placed upon the top of the hide, and is pressed downward, which, in a measure, compensates for the stretching lengthwise."

While this sentence is perhaps somewhat involved, and the meaning possibly somewhat ambiguous, it is certainly plain from what is said that while the shaft is being revolved back and forth the weight is not in the machine, or at least is not resting upon the hides, and that after such revolution of the shaft is completed the weight "*is placed* upon the top of the hide, and is pressed downward." It is plain that if the weight is then to be *placed* upon the top of the hide, it was not to be there before.

All of these statements clearly show that, so far as the weight or end pressure feature of the patented machine is concerned, the invention which the patentees made and sought to cover by their patent was the use of a weight to be placed in the machine and pressed down upon the coil of hides *after* the operation upon the hide due to the revolution of the shaft had been completed, the purpose of inserting and pressing down upon such weight being simply to crowd down the coil of hide and thus compress it edgewise, so as to compensate in a measure for the stretching or pressing lengthwise, and so as to give a rough, corrugated or seamy appearance to the leather.

Referring now to the particular construction of parts shown and described in the patent, it is to be noted, in the

first place, that the vertical shaft of the patent is a shaft which is provided with an elongated slot B, cut entirely through the shaft from one side to the other, and that the end of the hide is to be inserted in this slot and there held by a number of set-screws *b* inserted in the shaft, the hide being clamped between one of the side walls of the slot and the points or ends of the set-screws.

It will next be observed that no means is shown or described for pressing upon the weight I, except that in the drawings said weight is shown as being provided with a sort of rigid bail or handle, to which no reference is made in the specification, and which is presumably for the purpose of conveniently handling the weight.

Again, the bars composing the cage or crib are referred to and described as a vertical "*pins or rollers*." As already pointed out, these pins or rollers are non-adjustable in their supporting rings, i. e., are incapable of any radial movement toward or from the axis of the crib.

The claims of the patent are as follows:

> "1. The vertical shaft B with a slot, B', and set screws, *b b b*, said shaft having a forward and back motion, substantially as and for the purpose described.
>
> "2. The pins or rollers C C C set in the rings D and D', together with the grooved weight I, substantially as and for the purposes described."

It will be seen that the first claim purports to be only for the vertical slotted shaft *per se*, provided with set-screws; that the second claim is for the combination of the pins or rollers, i. e., the cage or crib, and the weight; and that there is no claim for the combination of shaft, cage, and weight.

It is plain that the claims were framed in direct accord with what, as above pointed out, was manifestly the understanding of the patentees as to the character of the invention which they had jointly made and as to the

characteristic features of the *improved* machine as compared with the prior Louis Royer machine. Thus the *first* claim was plainly designed to refer to that operation in the treatment of the hide which consisted in revolving the shaft back and forth and winding and rewinding the hide upon it, while the *second* claim was designed to refer to that secondary or supplemental operation in the treatment of the hide which consisted in subsequently placing the weight in the upper end of the cage and upon the top of the coil of hide, and pressing down upon such weight.

As the patentees were not jointly the inventors of the combination of a central shaft and a surrounding cage (this combination was the prior and sole invention of Louis Royer), they made no claim in their patent to such a combination, and as the characteristic feature of their joint improved machine was the *vertical slotted* shaft, they made that the subject of their *first* claim.

As another characteristic feature of their improved method of treating hides consisted in crowding down the coil of hide in the cage so as to compress it edgewise after the revolution of the shaft had been completed, they made the combination of the weight and the cage the subject of their *second* claim, and as the shaft performed no function in this secondary operation, they purposely omitted the shaft from this combination.

And finally, as the invention of the patentees did not involve the use of the weight during the revolution of the shaft, or, in other words, did not involve the co-operation of the three elements of shaft, cage, and weight, they made no claim for any such combination.

As further evidence that the patentees did not claim to have made any primary or pioneer invention, but only certain specific improvements upon a previously existing machine, it will be observed that they did not pretend to make any broad or generic claims, but instead framed

their claims in the most specific and limited manner possible, even going to the extent of limiting each part or element by the definite article "*the*," and by the employment of the reference letters used to designate each specific part in the specification and drawings.

Thus the Royer patent upon its face bears conclusive evidence that it does not relate, and was not intended to relate, to a pioneer machine or primary invention, but instead relates only to an *improved* machine, and that the invention sought to be covered thereby was of a very narrow and limited character.

The character of the patent is such that the public would be justified, upon reading the patent, in understanding, and in relying and acting upon the understanding, that said patent was limited to a vertical machine, and to a vertical machine embodying the particular vertical slotted shaft provided with set-screws and the particular vertical cage or crib composed of non-adjustable pins or rollers, shown and described in the patent and specifically claimed in the claims, and would be likewise justified in understanding that the patent related only to a machine in which no weight or end pressure was present during the revolution of the shaft, and in which the weight was inserted and pressed upon only after the revolution of the shaft was completed.

The limited character thus evidenced upon the face of the patent is emphasized by the history of the origin and development of the machine shown and described therein.

The Development and Construction of the Defendants' Machine.

The defendant's machine alleged to be an infringement of the Royer patent was invented and devised by William Coupe, one of the defendants, and in its perfected form as

used by the defendants embodies invention made the subjects of several patents granted to said William Coupe.

Mr. Coupe is a man who has had a very large, and in fact practically a life-long, experience as a leather worker and manufacturer. His experience, which commenced as far back as 1852, and has been practically continuous ever since, will be found fully set forth in his testimony. Coupe's Dep., Int. 3, Rec. p. 78.

In addition to the study and practice of the practical part of the business, Mr. Coupe has continuously devoted his attention to the improvement of processes and machines for the manufacture of leather, and as the result of his thought and study in this direction has procured some eleven or thirteen patents for inventions which he has made relating to the treatment and manufacture of leather. Coupe's Dep., Int. 5, p. 79.

As early as 1864 his attention was directed, on the occasion of a visit to Manchester, England, to the advantages of mechanically softened rawhide, in place of tanned leather, for certain uses, and especially as lacings for belts. He thereupon resolved, as soon as he could get to it, to undertake the manufacture of such rawhide leather, which he did in a small way in 1867. Coupe's Dep., Int. 6, p. 79; X Int. 552, p. 141; X Int. 265-273, p. 110.

At this time Mr. Coupe had a license under a patent spoken of in the record as the Page patent, which was for a process for manufacturing lace leather involving a certain amount of chemical tanning, but leaving a large portion of the product in a rawhide condition. This Page leather, which became extensively known as "Page's Patent Lace Leather," proved very successful, and the demand for it was so great that for several years Mr. Coupe's time was very largely occupied in manufacturing and supplying this leather. During these years, however, Mr. Coupe continued to manufacture more or less of the

entirely rawhide leather, using such machinery as he had in his establishment, including the fulling machine, the stuffing wheel, pounding machine, etc. for mechanically softening the hides. Coupe's Dep., X Int. 265-273, p. 110 X Int. 112.

Mr. Coupe had been familiar with the employment of fulling machines for the purpose of mechanically softening hides ever since he had been in business (Int. 7, p. 79; Int. 159-162, p. 98) and knew that such fulling machines were extensively used for such purpose in the manufacture of glove leather. Int. 163, p. 99.

When he came, therefore, to manufacture this rawhide leather for lacing, he employed the fulling machine which he already had in his establishment for similar purposes, for mechanically softening the hides. He found, however, that while the fulling machine would do the work, and do it satisfactorily, it took a good deal of time to properly and thoroughly soften with such machine the heavy hides required for the manufacture of lace leather, and that it would be advantageous, as a matter of saving time, if a machine could be devised which would do the work more quickly. Coupe's Dep., Int. 567, Rec. p. 143.

In this connection it is important to be borne in mind that while glove leather is manufactured from very light thin skins, lace leather, which is required to stand great tensile strain, has to be manufactured from thick, large, heavy hides.

Finding it therefore desirable to have a machine which would mechanically soften such heavy hides more rapidly than could be done with the fulling machine, Mr. Coupe proceeded to invent and devise a machine for the purpose. This he did in 1877. Coupe's Dep., X Int. 565, 566, p. 143.

The first machine thus devised by Mr. Coupe was patented by him, and will be found shown and described

in the patent which was granted to him on January 22, 1878, upon an application filed November 12, 1877, the same being Letters Patent No. 199, 415, a copy of the specification and drawings of which patent will be found at p. 196 of the Record.

The Coupe Patent No. 199, 415.

Referring to this Coupe patent, No. 199, 415, for an understanding of the construction and mode of operation of this first machine devised by Mr. Coupe, it will be seen that the machine as a whole was what may be termed a compound machine, embodying a series of separate machines arranged radially about a common centre, and so as to be all driven from a single bevel gear, as shown in Fig. 2 of the patent. Each of these separate machines is a duplicate of the other, and a description of one is all that will be necessary.

It will be observed, in the first place, that the machine of this Coupe patent is a *horizontal* machine, embodying a central rotating shaft C and a surrounding cage or crib composed of stationary heads B in which are mounted a series of cross-bars *b*. Thus to this extent the machine corresponds with the original machine which was the sole invention of Louis Royer, and differs from the improved machine which was the subsequent joint invention of Herman Royer and Louis Royer, and which forms the subject of the Royer patent in suit.

It will next be found that the bars *b* composing the cage are not set or fixed immovably in their supporting heads, but are instead so mounted in said heads as to be radially adjustable therein towards and from the axis of the crib, one of the supporting heads being provided with "short guide-slots *a*," and the other supporting head being provided with "corresponding socket-recesses *a*" to permit this radial ad-

justment of the bars *b*, the adjustment of which "nearer to or farther from the center" is affected by set-screws *d*. Thus in the respect also that the bars of the cage or crib are radially adjustable in their supporting heads towards and from the center, this machine of the Coupe patent corresponds with the original Louis Royer Machines, and differs from the subsequent improved machine of the Royer patent in suit.

It will be next observed that the central rotating shaft of the machine of the Coupe patent is not provided with an elongated slot extending clear through the shaft from one side to the other, as is the shaft of the machine of the Royer patent, but instead the shaft of the Coupe machine is provided with "concave recesses" upon its periphery into which fit "detachable clamp sections *f*, which latter are provided with "spurs f^1 and fastening screws f^2." By this construction and arrangement of parts the end of the hide is not inserted edgewise into an elongated slot in the shaft and there clamped between the side wall of the slot and the point or end of a set screw, but instead the end of the hide is laid flat into one of the concave recesses in the shaft and is clamped therein by means of one of the clamp-sections *f*, and its fastening screw f^2, said screw passing through both the clamp-section and the hide itself and taking into the main body of the shaft at the bottom of the concave recess. The difference between these two methods of attaching the hide to shaft will be further explained to the court at the hearing in connection with the models.

Finally it will be seen that the machine of this Coupe patent does not embody any weight, and of course a weight would be of no use in such a horizontal machine. The machine does have a part, termed "a false head *g*," with recesses for the cross-bars, and which is arranged to slide upon the central shaft, but this false head does not

perform the function of the weight in the machine of the Royer patent, and is in no sense an equivalent for such weight This false head is controlled and adjusted in position by means of a set-screw *g'*, and the purpose of said false head is stated to be "to confine the heads into a narrow compass." It will be noted that this false head is always in the machine and is necessarily present during the revolution of the shaft, and furthermore there is no description and no suggestion of any use to be made, or of any function to be performed, by this false head after the revolutions of the shaft have been completed.

On the contrary, the entire purpose and function of the false head in the Coupe machine is performed while the shaft is being revolved and while the machine is in operation. Mr. Coupe conceived the idea, an idea nowhere found or suggested in the Royer patent, that it would be advantageous to have more or less end pressure upon the coil of hides, or at least to have the coil of hides *confined at both ends*, as well as circumferentially, *during* the back and forth revolutions of the shaft and during the consequent winding and rewinding of the hides upon the shaft. This idea is nowhere disclosed in the Royer patent, and was manifestly never conceived of by either of the Royers at the time their patent was procured, for they describe the weight as being out of the machine, or removed from contact with the coil of hides, which would leave the upper end of the coil of hides entirely unconfined, during the revolutions of the shaft.

That the purpose and function of the false head in the Coupe machine is as above stated is clearly evidenced by the patent itself. Thus in one place it is directly stated that the false head is adjusted laterally by the set-screw *g'*, "so as to confine the hides in a narrower compass," and again, in speaking of the effect of the back and forth revolutions of the shaft, the specification says:

> "This causes the forcible reversing of the hides from the shaft to the outside, and as the hides are retained by the cross-bars and the false and permanent heads, the so-called 'boarding' or breaking up of the same is obtained by the powerful strain exerted thereon."

After trying a machine constructed in accordance with said patent, No. 190, 415, Mr. Coupe found that it could be improved, and particularly that it was desirable, if not necessary, for the successful operation of machines of this character, that there should be a false head at each end of the crib, and so that the space for the coil of hides could be increased or diminished at both ends of the crib. He thereupon proceeded to devise an improved machine which was made the subject of another patent granted to him under date of April 16, 1878, upon an application filed March 22, 1878, the same being No. 202, 414, the specification and drawings of which will be found at page 198 of the record.

The Coupe Patent No. 202, 414.

This patent shows and describes a single machine, that is, a machine having a single cage or crib. In general character the machine of this patent is the same as that of the machine of the prior Coupe patent, being a horizontal machine embodying a central shaft and an enclosing cage or crib composed of radially adjustable bars mounted in supporting heads provided with slots to receive said bars. The means for attaching the hides to the shaft is likewise the same, consisting of concave recesses formed in the periphery of the shaft, and clamping sections or plates fitted in said recesses and held in place by set-screws which pass through the hide, an improvement in this connection, however, consisting in a sort of break-joint arrangment of these recesses with relation to the shaft and the supporting heads, as shown in Fig. 1 of the drawings.

Instead of a single false head, as in the machine of the prior Coupe patent, the machine of this patent is provided with two false heads D, one at or near each end of the crib. These two false heads are connected together, and adapted to be simultaneously moved toward or from each other by means of two right and left hand screws E arranged one at each side of the crib and engaging with suitable traversing nuts E connected with the false heads. The two right and left hand screws are each provided at one end with a gear-wheel, which two gear-wheels intermesh with a third gear-wheel mounted so as to turn loosely on the center shaft, said third gear-wheel being provided with a crank, the arrangement being such that by simply turning this crank gear-wheel in one direction or the other, the two false heads will be simultaneously moved towards or from each other, and so as to diminish or increase the space for holding the coil of hides which latter is at all times during the operation of the machine closely confined on all sides, as in the prior Coupe machine.

The patent also shows and describes certain spiral spring as interposed betwen the false heads and their traversing nuts, and certain other spiral springs as interposed between the bars *b* of the cage and the set-screws *d* which hold then in place, the specification stating that by the use of such spiral cushioning springs, the rigid bearing of the false heads and of the enclosing bars on the coil of hides is diminished and a certain degree of yielding imparted to the same.

The manipulation and operation of the two false heads is thus described in the specification:

> "When the hides are thus attached to and wound on the shaft, the false heads are moved up, so as to confine the hides laterally to the required degree, and then the cross-bars inserted into the stationary and false heads. The pressure of the *gradually-tightened* cross-bars *and of the false heads* produces the tight lapping of the hides around the shaft.

> The machine is then set in motion—first in one, then in a reverse direction—and thereby the hides broken or boarded in uniform manner all through."

It will be observed that in the operation of this machine as in the machine of the prior Coupe patent, the false heads are always in place in the machine and form component parts thereof, and also that said false heads cooperate with the surrounding bars of the cage to confine the hide and hold it up to its work *during* the revolution of the shaft, and performs no function thereafter.

It is substantially the machine of this second Coupe patent which has been used by the plaintiffs in error (defendants below), and which is alleged to be an infringement of the Royer patent in suit. In fact the machines used by the defendants are identical with the machine of said second Coupe patent, with the exception that none of the machines actually used have contained the cushioning springs behind the false heads (Coupe's Dep., Int. 130, p. 93; X Int. 432, p. 128), and that in most of the machines the cushioning springs outside of the cage-bars were likewise omitted. Coupe's Dep., X Int. 435, p. 128.

Subequently Mr. Coupe devised a very large machine of the same general character, sometimes spoken of in the record as the "elephant" machine, embodying certain further features of invention especially applicable to a machine of such large size, and for which a third patent was granted to him on May 10, 1881, on an application filed March 31, 1881, the same being No. 241,308, the specification and drawings of which will be found at page 201 of the record. As there is nothing disclosed in this patent which has any bearing upon the questions here involved, no detailed examination thereof will be necessary.

An attempt was made in the cross-examination of Mr. Coupe to show that prior to Mr. Coupe's invention and construction of the defendants' machine, he had seen, at

Philadelphia, a Royer machine. This attempt completely failed, and Mr. Coupe testified positively that he had never seen a Royer machine, or any other similar machine, prior to the construction and introduction of the machine which he himself devised. Coupe's Dep., X Int. 394-402, p. 124; X Int. 409, p. 125.

This attempt was plainly a "fishing excursion," and no testimony was presented on behalf of the plaintiffs in support of any such contention, and no further effort whatever made to prove any such fact, although if it had been a fact it would have been perfectly easy for the plaintiffs to have proved it by calling the parties in Philadelphia at whose establishment Mr. Coupe admitted having seen a Royer machine at a later date, and after he had constructed and put into operation his own machine.

It will be seen, therefore, that the defendant's machine was original with Mr. Coupe, that it was the result of independent thought and study on his part, and the product of his own labor and invention. The defendants' machine was not copied from the Royer machine, and was not in any way an outgrowth or developement therefrom. On the contrary, it was an entirely original machine devised and perfected by Mr. Coupe, as the result of his long experience as a leather worker and manufacturer, and absolutely without any knowledge of, or assistance from, the Royer machine or patent, or anything that the Royers, or either of them, ever did.

Furthermore it is to be remembered that the machine of the defendants forms the subject of several patents granted to Mr. Coupe, and while it is not contended that these Coupe patents are early enough in date or broad enough in scope to cover the Royer machine, it is insisted that they do cover and protect the essential features which characterize the defendants' machine, and which render it a radically different machine both in organization and operation from the machine of the Royer patent in suit.

The Redress Sought in the Present Action.

The defendants began the use of the machines alleged to be an infringement of the Royer patent in 1877. The plaintiffs, or at least one of them, viz., Louis Royer, had full knowledge of what was being done by the defendants and the character and construction of the machines employed by them for mechanically softening hides in the manufacture of rawhide leather, as early as 1880, for some time in that year Louis Royer visited the establishment of the defendants at South Attleborough, Mass., was shown around the factory, and examined the defendants' machines which were in regular operation at the time. Coupe's Dep., Int. 35-43, Rec. pp. 81, 82.

At that visit Louis Royer made no claim that the defendants' machines were any infringement of the Royer patent in suit, or of any other patent,—in fact made no claim of infringement whatever. Coupe's Dep., Int. 47, 48, p. 82.

On the contrary, Louis Royer at that time apparently recognized and admitted that the defendants had full right to use their machines, for he endeavored to negotiate an arrangement with the defendants to send or consign to him in England lace-leather manufactured by them on said machines. Coupe's Dep., Int. 44-46, p. 82.

Thus at that time Louis Royer fully acquiesced in the use of said machines by the defendants. In fact it may be said that by his effort to negotiate an arrangement for the sale of their product he encouraged the continued use of the machines.

In the following year, that is, in 1881, Herman Royer, the other plaintiff, likewise visited the defendants' establishment, was freely admitted into the factory, and made a full examination thereof, including an examination of the machines here in question, which were in regular operation at the time, and he likewise made no claim whatever as to

the defendants' machines being an infringement. Coupe's Dep., Int. 50-54, p. 83.

The only explanation given by Herman Royer of his visit was that "he was looking around, seeing what other people were doing," and having in the course of his interview told Mr. Coupe that he (Coupe) knew more about rawhides than all the men he had met, departed in a cordial and friendly manner. Coupe's Dep., Int. 55,58, p. 83.

Mr. Royer, when called in rebuttal, sought to create a different impression as to the character of this visit to the defendants' factory and of his interview with Mr. Coupe, about which he had said nothing whatever in his opening testimony, and claims that he went there and in a threatening manner demanded entrance into the factory and the right to go through the whole establishment, and, without waiting to ascertain whether such permission would be granted or not, proclaimed that if he was not permitted peaceably he would do it by law. Then, admitting that he was freely admitted and shown through the whole establishment, he claims, in response to a leading question, that he told Mr. Coupe "that his machines were just identically mine." (Int. 399, p. 181), and then, being pressed with a still more leading question (Int. 400,) that "I told him that he was infringing my patents and I would try to put a padlock on his shop." Royer's Dep., Int. 398-400, p. 181; X Int. 409, p. 183.

Even by this manisfestly highly-colored account of his visit to the defendants' establishment, and of what took place there, and even with all the prodding of the questions put to him, it will be noted that Mr. Royer does not pretend to claim that he directed Mr. Coupe's attention to the patent in suit, or to any particular patent, or that he gave to Mr. Coupe any notice that the defendants' machines were an infringement of the said patent in suit. According to his own account of the interview, all that it

amounted to was a general threat that he "would try to put a padlock on his shop," whatever that may mean.

If such a threat was made, nothing whatever was done to carry it out for a period of over four years. This visit of Herman Royer's was in June, 1881, (Royer's Dep., Int. 417, p. 183) and nothing more was ever heard by the defendants from Royer, or anyone on his behalf, as to any infringement, until the service of the writ in this case, which writ was dated July 14, 1885. With a full knowledge of what the defendants were doing, the plaintiffs deliberately lay by and permitted the defendants to continue the use of their machines, and to develop and increase their business, for more than four years, and until after the patent had expired, when they commenced this action at law for damages, and proceeded to attach the real estate of the defendants to the amount of *five hundred thousand dollars!*

In this connection it may be pertinent to inquire whether the course thus pursued by the defendants indicates that during these years of inaction they were suffering any injury or damage at the hands of these defendants.

It is to be remembered that this is an action at law for damages, and that the only redress sought for the alleged infringement is the recovery of such damages as the plaintiffs can show that they have suffered. The plaintiffs studiously avoided, during the life of the patent, bringing a suit in equity for an injunction and an account of profits. They deliberately elected not to interfere with the use of the defendants' machines, but instead to permit the defendants to run them to their fullest capacity, and to increase and extend their business, and then to scoop down upon them with an attachment and with an enormous claim for damages, such action having been apparently based upon the erroneous theory that the full profits made by the

defendants would be directed by the courts to be paid over to them as a presumptive measure of their damages, and that consequently the greater the amount of profits which they permitted the defendants to make, by not interfering by injuction, by so much greater would be the "damages" to be ultimately recovered. In other words, their plan was to allow the defendants to devote their time, money and energy to the making of profits during the full remainder of the life of the patent, and then, by an action for damages to simply transfer the entire profits so realized into their own pockets. And this entirely without regard to whether they, the plaintiffs, had ever suffered one single cent of actual damage at the hands of the defendants, and in the entire absence of any proof of such actual damage.

The Questions Involved.

The defences relied upon, and the questions presented for the determination of this court upon the above facts, as raised by the bill of exceptions, are:

1. That the plaintiffs' patent is upon its face, and must under the evidence as to the prior art, be construed to be, limited to the particular machine shown and described therein, and that so construed the defendants' machine does not infringe, and that the court below erred in not so instructing the jury.

2. That the combination of parts or elements in defendants' machines operates differently from the combination of parts shown and described in the plaintiffs' patent, and produces an effect different in kind, and that the court erred in not instructing the jury that if they found that the defendants' combination did thus operate differently from the patented combination, and produced an effect different in kind, their verdict should be for the defendants.

3. That a mechanical equivalent for a device shown in

letters patent is a thing which performs the same result in substantially the same way or by substantially the same mode of operation, and that under this rule the two pressure-plates or false heads controlled as to their movement and as to the degree of pressure exerted by right and left hand screws were not the equivalent, in the defendants' horizontal machine, of the weight in the vertical machine of the plaintiffs' patent, and that the court erred in not instructing the jury that if they found such to be the fact, then their verdict should be for the defendants.

4. That a machine constructed as shown and described in the plaintiffs' patent is not a practically operative or useful machine, and that the court erred in its instructions to the jury as to the rule to be observed in determining this question.

5. That under the rules established as to the recovery of damages for the infringement of a patent in an action at law, and as to the proof requisite to entitle a plaintiff to such recovery, the plaintiffs have neither proved nor suffered any damage at the hands of the defendants, and are entitled at the most to the recovery of only nominal damages and that the court erred in its instructions to the jury upon this point, and should have directed the jury, if they found the defendants' machine to be an infringement, to return a verdict for nominal damages only.

6. That the defendants had never, prior to the commencement of the action, received any notice of the plaintiffs' patent, or been notified of the alleged infringement thereof, and that therefore, there being no proof whatever that the plaintiffs had ever marked the machines made under the patent with the word "patented," together with the day and year the patent was granted, the plaintiffs were not entitled to recover from the defendants any damages whatever under the provisions of Section 4900 of the Revised

Statutes of the United States, and that the court erred in its instructions to the jury upon this point.

The above questions all involve errors in the charge of the Court, either in the instructions given or in the refusal to give instructions requested. The instructions requested and refused, and the instructions given, which are claimed to be erroneous, are set out in the bill of exceptions. Rec. pp. 5-15. As such requests and instructions each relate particularly to the several errors assigned, and as some of the instructions are quite lengthy, it is believed that it will be more convenient for the Court to quote each such request and instruction in connection with the discussion of the assigned error to which it relates, instead of quoting them at this time in connection with the assignment of errors.

The assignment of errors is as follows, Rec. p. 210:

Assignment of Errors.

"1. Because the court erred in its instructions to the jury as to the proper construction of the plaintiffs' patent and the claims thereof and as to the scope of the plaintiffs' patent as covering the defendants' machine, as set forth in the first exception.

"2 Because the court erred in its instructions to the jury in a matter of law involved in determining the question of infringement on the subject of the effect of the substitution of devices in the defendants' machine different from the devices specified in the plaintiffs' patent, as set forth in the second exception.

"3. Because the court erred in its instructions to the jury as to the rule for the determination of what does constitute a mechanical equivalent in a machine and as to the application of the doctrine of mechanical equivalents to the plaintiffs' patent, as set forth in the third exception.

"4. Because the court erred in its instructions to the jury as to the proper course to be observed in constructing a working machine from letters patent for the purpose of determining whether it be or be not an operative machine in the

sense of the patent law, as set forth in the fourth exception.

"5. Because the court erred in its instructions to the jury on the subject of the rule incumbent upon the plaintiffs in the proof of damages in an action for infringement of letrers patent, as set forth in the fifth exception.

"6. Because the court erred in its instructions to the jury upon the duty of the plaintiffs in a suit for the infringement of letters patent to give notice that his [their] invention is patented to lay the foundation for the recovery of damages, as set forth in the sixth exception."

BRIEF OF ARGUMENT.

The errors assigned, and the questions involved, will now be considered in order.

The First Assignment of Error.

The first assignment of error is as follows, Rec. p. 211:

"1. Because the court erred in its instructions to the jury as to the proper construction of the plaintiffs' patent and the claims thereof, and as to the scope of the plaintiffs' patent as covering the defendants' machine, as set forth in the first exception."

It is submitted, in the first place, that by its terms the plaintiff's patent is, and upon its face must be construed to be, limited to the particular machine shown and described therein, that is, to a vertical machine, and to a vertical machine having a vertical slotted shaft provided with set-screws, and having a vertical cage or crib provided with non-adjustable pins or rollers, and without any weight as a component part of the machine, such weight being at the most only an independent adjunct to be employed in a secondary operation.

The patent upon its face pretends to be only for an *improved* machine, and the improvements which the patent purports to cover are described and specified in the claims in the most specific manner possible, even the specific

letters of reference in the drawings being employed in the claims to designate the things claimed.

It is submitted that the claims of a patent which are thus precise, definite, and unambiguous cannot be varied, much less enlarged, by construction, but must be held to be limited in accordance with their terms, under the doctrine of the following cases:

Keystone Bridge Co. v. Phoenix Co., 95 U. S., 274, 278;
Merrill v. Yeomans, 94 U. S., 568;
Burns v. Meyer, 100 U. S., 761;
Water Meter Co. v. Desper, 101 U. S., 332;
Railroad Co. v. Mellon, 104 U. S., 112;
White v. Dunbar, 119 U. S., 47;
Sutter v. Robinson, 119 U. S., 530.

That this is especially so in the case of claims in which each element is expressly restricted by reference letters to the structure described and shown; see

Weir v. Morden, 125 U. S., 106;
Hendy v. Miner's Iron Works, 127 U. S., 375.

We do not understand the principles established and applied in the above, as well as many other, cases to have been in any way modified or affected by the decision of this court in the case of *Hoyt v. Horne*, 145 U. S., 302. While at first it might appear that the court had in that case construed a process claim, which called for the circulation of the fibrous material and liquid "in vertical planes" as covering a process in which the fibrous material and liquid were circulated more or less in horizontal planes, the fact appears to be that in the defendant's machine the midfeather, which was vertical instead of horizontal as in the patented machine, did not extend clear up to the beater roll, with the result that, while the

material at the opposite end of defendant's machine was circulated in horizontal planes, it was nevertheless at the beater roll or operative end of the machine circulated in vertical planes just as in the patented machine. The court held that the important thing was the circulation of the material at and near the beater roll, and that as the material at that point was circulated in the defendant's machine just as it was in the patented machine, viz., in vertical planes, the court found infringement of the *process* claim in question. Thus the decision of the court, as we understand it, was, not that the claim was not limited to a circulation in vertical planes, but that the circulation in the defendant's machine at the operative end, and at the only point where it was important, was in vertical planes, and thus came within the language of the claim.

It is next submitted that the construction to be given to claims of the specific character referred to is entirely independent of, and in no way affected by, the question of whether the invention is, as a matter of fact, a pioneer or primary one. While it has been established that the construction to be given to the claims of a patent *may* depend upon the character of the invention—whether primary or secondary—and that in certain cases where it appears that the invention was a primary one, a broad construction will be given to claims which otherwise would be given a much narrower construction, or, as it has been otherwise expressed, that a broader range of equivalents will be applied to a claim where the invention is of a pioneer character, we understand that this rule applies only to claims which on their face are capable of the broad construction without doing violence to the express terms or language thereof.

We do not understand that even in the case of a pioneer invention a construction is to be given to the claims of a patent which would be in direct conflict with

the express term thereof. On the contrary, it is understood that where the terms of a claim are plain and explicit and bear evidence of having been intentionally, however mistakenly, limited to a particular machine or device, it is immaterial, as affecting the construction of such a claim, whether the invention be a primary one or not.

Thus in the leading case of *Morley Machine Co.* v. *Lancaster*, 129 U. S. 263, the claims of the Morley patent were framed in very broad language, and this fact was evidently taken into account by the court in according to the Morley patent the broad construction which was given to it, for in stating that the effect of the rule as to pioneer inventions as applied to that case was that the Morley patent was not to be limited to the particular devices or instrumentalities described by him, the court was careful to say that this was so "especially in view of the character and terms of the four claims in question." p. 286.

And again, p. 284, the court says:

> "But in a pioneer patent, such as that of Morley, with the four claims in question such as they are, the special devices set forth by Morley are not necessary constituents of the claim."

The position upon which we rely in this connection cannot be better stated then in the language of this court in the case of *McClain* v. *Ortmayer*, 141 U. S. 419. The earlier of the two patents involved in that case was, so far as the record discloses, a pioneer patent. At all events it was plain that the invention made by the patentee was much broader than he had claimed, and it was contended that the claim should be construed so as to be commensurate with the invention actually made by the patentee. In answer to this argument the court says:

> "Nothing is better settled in the law of patents than that the patentee may claim the whole or only a part of his invention, and that if he only describe and claim a part he is pre-

sumed to have abandoned the residue to the public. The object of the patent law in requiring the patentee 'to particularly point out and distinctly claim the part, improvement or combination which he claims as his invention or discovery,' is not only to secure to him all to which he is entitled, but to apprise the public of what is still open to them. The claim is the measure of his right to relief, and while the specification may be referred to, to limit the claim, it can never be made available to expand it."

* * * * * * *

"It is true that, in case of doubt, where the claim is fairly susceptible of two constructions, that one will be adopted which will preserve to the patentee his actual invention; but if the language of the specification and claim shows clearly what he desired to secure as a monopoly, nothing can be held to be an infringement which does not fall within the terms the patentee has himself chosen to express his invention."

The precise question was recently before the Circuit Court of Appeals for the Second Circuit, and that court decided the rule to be as we have stated. The case is that of *Groth* v. *International Postal Supply Co.*, 61 Fed. Rep. 284. Beyond doubt the earlier of the two patents involved in that case disclosed a primary invention. The machine was of a very ingenious character and entirely new, as new in fact, so far as the record shows, as the Morley button-sewing machine. The claims, however, were not as broadly framed as they might have been, nor as broad as the actual invention. It was contended that inasmuch as the invention was of a primary character, the claims should receive a broad construction and were entitled to cover a broad range of equivalants. The court decided otherwise, and held that, notwithstanding the primary character of the invention, the patentee was bound by the limititations which he had imposed upon the claims, and that the fact that the invention was of a primary character did not warrant a construction of the patent which did away with restrictions imposed by the claims themselves.

After referring to the principle established in *Morley v. Lancaster*, the court directed attention to the equally well established principle announced in *McClain v. Ortmayer*, *supra*, that "the construction of a patent must be in conformity with the self-imposed limitations which are contained in the claims," and held that this principle applied as well to the case of a pioneer patent as to any other.

Under the principle above stated, the court in the present case was requested to instruct the jury "that the plaintiffs' patent, and the claims thereof, on its face should be constructed as requiring the presence, in the combination recited therein, of a vertical shaft and a correspondingly arranged vertical crib, and that as it appeared from the evidence, and was undisputed, that the machines complained of as used by the defendants were provided with horizontal shafts and horizontal cribs, the jury should return a verdict for the the defendants." Bill of Exceptions, Rec. p. 6.

This instruction the court declined to give, but instead did instruct the jury as follows, Rec. p. 6:

> "You will come, however, gentlemen, to another and further consideration, which you must determine upon the testimony which is laid before you. In order to explain that, perhaps, I ought to preface by saying what you are to take this patent to mean; what it is, in brief terms, that it covers. In order that I may bring my observations within the technical requirements, what is the interpretation which you are to put upon this patent? This, gentlemen, is a patent, and the invention of the plaintiffs is an invention which is to be described as follows: It consists of a shaft which contains or has attached to it means by which hides can be fastened to its periphery. Around that shaft and leaving that shaft in the centre are arranged a number of bars which shall contain the roll of hides after it has been wrapped around the central shaft. In the third place there is a plunger or false head or contracting device, whatsoever you may call it—a piece of metal or of wood—which so moves as to reduce the space within which the hides are contained for the purpose of squeezing them sidewise. That is

> all there is in the machine, and any machine which contains these elements is an infringement of the plaintiffs' device and is a violation of law. I need not say to you that the defendant's machine is such a machine. It contains a central shaft and a device for fastening hides to it. It has other devices, also, for fastening other hides, but that constitutes no excuse for the use of the one single device for fastening hides. It has the bars surrounding the central shaft and which confine the hides after they are wound about that shaft. Those bars also have conveniences and means for adjusting them inwardly and outwardly. It also has a movable head, which operates to reduce the space in which the hides are, or, in more popular phrase, to squeeze the hides together, and it also has another corresponding head on the other side, two instead of one."

In short, this instruction of the court was to the effect that the plaintiffs' patent was not limited to a vertical shaft and a vertical crib, or to any of the details or construction referred to in the claims, but was instead broadly for the combination of *a* shaft provided with means for attaching a hide to it, *a* surrounding cage, and *a* false head, and entirely irrespective of how those parts were constructed and arranged, and that any machine which contained these elements was an infringement.

This instruction, it is submitted, was in direct violation of the established rules of law and erroneous.

In this connection it may be further noted that, in explaining to the jury the meaning of the plaintiffs' patent and what was covered thereby, the court not only ignored entirely the language of the claims, but ignored absolutely the fact that there were any claims in the patent. Instead, the court referred solely to the *machine* shown and described in the patent, without any reference whatever to the *claims* of the patent. Not a single word was said to the jury that under the law a patentee was required "to particularly point out and distinctly claim the part, improvement or combination which he claims as his invention or discovery," and that the claims of a patent were the meas-

ure of the monopoly. The claims of the patent were absolutely disregarded by the court.

As an evidence of the error of the court in this respect, it will be noted that the court practically told the jury that the thing covered by the Royer patent was the combination of the three elements of shaft, cage, and weight, whereas, as has been pointed out, the patent contains no such claim, but instead the first claim is for the vertical slotted shaft *per se*, and the second claim is for the combination of the vertical cage and the weight.

Even if the claims of the Royer patent were not thus expressly limited in terms, and even if they were susceptible of two constructions,—a broad construction if the invention was of a primary character, and a narrow construction if it were not, and if there were any evidence tending to show that the invention was of a primary character, it was the duty of the court, under the rule laid down by this court in the case of *Royer* v. *Shultz Belting Co.*, 135 U. S. 319, to have submitted to the jury the question whether under the evidence the invention was "one of a primary character" and the patent a "pioneer patent," at the same time explaining to the jury the different constructions to be put upon the claims in case they found the invention was or was not a primary one. Nothing of this sort was done. In effect the court went to directly the opposite extreme from the court in the Shultz case. In that case the court instructed the jury to find a verdict for the defendant; in this case the court practically instructed the jury to find a verdict for the plaintiffs.

Thus the court, after telling the jury, in effect, that the invention of the Royer patent consisted in the combination of a central shaft, a surrounding cage, and a weight, charged directly and without any qualification whatever:

> "That is all there is in the machine, and any machine which contains these elements is an infringement of the

> plaintiffs' device and is a violation of law. I need not say to you that the defendants' machine is such a machine."

This was plainly as direct an instruction to the jury to find a verdict for the plaintiffs upon the question of infringement as though the court had directed the jury in so many words to find such verdict. The jury was left no alternative in the matter, and no opportunity for the exercise of their own discretion and judgment upon the question of the scope of the Royer patent or the question of infringement.

We submit that such instruction of the court was unwarranted by law and erroneous, and as much so whether as a matter of fact the invention of the Royer patent be a primary invention or not, or whether there was or was not any evidence before the jury tending to show that it was of a pioneer character.

As a matter of fact, as has been already pointed out, the machine of the Royer patent was not a pioneer machine, but instead was, and the patent upon its face purports to relate only to, an *improved* machine. By the plaintiff's own testimony it was only an improvement upon the prior Louis Royer horizontal machine. Upon these facts, and in view of the testimony as to the prior existence of the Louis Royer machine, the court should at least have instructed the jury, even if the Royer patent had not been limited upon its face, that if the jury believed the testimony as to the prior Louis Royer machine, the Royer patent must on that account be limited to such features as served to distinguish the machine shown and described therein from said prior Louis Royer machine, and that if they did not find those distinguishing features in the defendant's machine, there was no infringement, and the verdict must be for the defendants. No such instruction was given, and no reference made by the court to the Louis Royer machine or the testimony relating thereto, but instead the

court simply gave to the jury the unqualified and erroneous instruction above quoted.

If it be contended that the Louis Royer machine were more or less crude and imperfect, and is entitled to be considered as nothing more than an abandoned experiment, the answer is that, so far as the joint invention which forms the subject of the patent in suit is concerned, said Louis Royer machine nevertheless constitutes a part of the prior art, so far as these patentees are concerned, and for the reason that it was this very Louis Royer machine which the patentees jointly sought to improve, and the machine of the patent in suit is the result of that joint effort. In other words the patented machine, is as a matter of fact, and apart from any question of law, the direct result of an effort to improve upon said Louis Royer machine, and the patent itself is only for such improved machine.

The Second Assignment of Error.

The second assignment of error is as follows:

> "2. Because the Court erred in its instructions to the jury in a matter of law involved in determining the question of infringement on the subject of the effect of the substitution of devices in the defendants' machine different from the devices specified in the plaintiffs' patent, as set forth in the second exception."

In this connection our position is that the horizontal machine of the defendants is, by reason of the very fact that it is a horizontal machine, radically different from the vertical machine of the Royer patent; that it operates in a different manner, and produces different results; that the two controlled false heads which form component parts of defendants' machine operate in a different manner and perform different functions from the described operation of the weight in the Royer patent; and that by

reason of such differences between the defendants' machine and that described in the Royer patent, the invention described in said patent is not, and cannot possibly be, present in defendants' machine.

To make clear our position we will first explain the differences in the operation of the two machines, and in the results produced, with references to the testimony upon the subject.

As will be remembered, the hides operated upon by these machines are large heavy hides. The weight of a single hide of this character is very considerable; the combined weight of the number of hides usually introduced into one of these machines is many pounds. It is apparent that the action of gravity upon a vertical coil of such hides will be an important factor. Now while these hides, when first introduced into one of these machines, are more or less hard and rigid, the action of the machine is to make them soft and flabby, and so that if the softened hide be held vertically by one edge, the bulk of the hide will fall down or collapse. Coupe's Dep., X Int. 353, p .115.

If one or more of these hides be inserted edgewise into a vertical machine like that shown and described in the Royer patent and its edge be fastened in the elongated vertical slot of the central shaft, and then wound upon said shaft so as to form a vertical coil thereon, the hide will, as it becomes gradually softened, necessarily tend to fall by its own weight toward the bottom of the crib, and as it is fastened by its edge to the shaft, the result will be that in the continued revolutions of the shaft the hide will not be wound cylindrically thereon, but will instead have a tendency to rope or twist, and be wound upon the shaft spirally in such roped or twisted condition. The hide will therefore not be softened by a simple and uniform bending back and forth, but will be softened by a sort of combined bending and *twisting* or *wringing* operation.

Coupe's Dep., Int. 88, p. 86; Int. 107, p. 90; Int. 135, p. 94.

As this roping or twisting of the hide necessarily produces bunches and irregularities throughout the coil and upon its surface, and a badly wrinkled condition of the hide, it is plain that the hide will not be uniformly softened throughout its entire area, but that instead some portions will be more thoroughly softened than others. In practice it was found by Royer himself that while portions of the hide would be softened too much, other portions would still be hard and unsoftened.

Thus Royer testified in another case, as admitted by him, Rec. p. 57:

> "I many times worked hides in the machine, while trying my best with the lights then before me, and the hide would come out of the machine overheated and thereby injured by the mechanical action in some places, while there would yet be raw hard spots in other places in the same hide."

Moreover the sinking or falling downward of the mass of hides in the crib would necessarily have a tendency to tear the hides away from their fastenings to the shaft, the entire weight of the hides being effective to cause this tearing away. Such tearing away of the hides is a frequent occurrence in the operation of the machine, as admitted by Royer himself. He testified, p. 48:

> "I have had the edges of the hides, where they were fastened to the revolving shaft, torn off from the hides many hundreds of times."

If there were an uncontrolled weight resting upon the coil of hides, this liability of the hides to be torn from the shaft would be greatly increased.

Again, the formation of bunches in the coil of hides by the roping and twisting thereof, as above explained, not only causes great irregularity, in the operation of the machine and in the results produced, but frequently causes the spiral coil of hides to become so wedged or jammed

against the rigid and non-adjustable bars of the cage as to absolutely stop the machine. Royer's Dep., Int. 304, p. 47.

Another result of the vertical character of the machine, and one which likewise frequently results in completely stopping the machine, is that the mass of hides, as they become more and more softened, gradually settles downward toward the bottom of the crib, until finally the hides become so packed and jammed at that point that further operation of the machine is rendered impossible. Coupe's Dep., p. 88, 89.

Thus it will be seen that in a vertical machine the weight of the hides, or the action of gravity thereon, necessarily plays an important part, and serves to modify the operation of the machine and its action upon the hide, and to change the character of the results produced, and that at times the effect of this action of gravity upon the hides is so great as to prevent the operation of the machine altogether.

With a horizontal machine like the defendants' there is no such effect upon, or change in, the operation of the machine by the action of gravity on the hides. The machine being horizontal, the hides are wound cylindrically upon the central shaft, and they continue to be so wound and rewound during the continued revolutions of the shaft, no matter how soft and flabby they may become. As a result, the hides are softened solely by a bending operation, there is no tendency whatever of the hides to become roped or twisted, and each hide is thoroughly and uniformly softened throughout its entire area. Coupe's Dep., Int. 126, p. 93; Int. 144, p. 96.

As there is no roping or twisting of the hide, there is no formation of bunches to interfere with the uniform softening of the hide, or to produce a jamming and consequent stopping of the machine. As the coil of hides is in a hor-

izontal position and supported by the shaft, there is no tendency of the hides to settle towards one end of the crib, but instead the hides remain in the desired position, and when they expand, as they will under the continued action of the machine, they will expand uniformly in both directions, remaining at all times wound about the shaft in cylindrical layers. The coil always remains a cylindrical coil, and never becomes a spiral coil, as must always be the case in a vertical machine.

Coming now to the further difference between the two machines, which consists in the fact that in the machine of the Royer patent the weight is not in the machine during the revolution of the shaft, and is placed in the machine and pressed upon only after the revolution of the shaft is completed, whereas in the defendants' machine there are two false heads which constitute the component parts of the machine and which operate only during the revolution of the shaft, this difference is likewise material and important.

In the machine of the Royer patent, the weight being out of the machine, or raised off of the coil of hides, there is no pressure upon the upper end of the coil of hides during the revolutions of the shaft, and they are not confined at the upper end at this time. The patentees evidently considered it unnecessary and undesirable that there should be any such pressure or confinement at the upper end of the cage in a vertical machine, for they must have realized that the weight of the hides would always tend to cause them to fall downwards, and that the presence of the weight would only increase the difficulty,

The weight in the Royer machine has no office or function during the revolution of the shaft, and there is never at any time any co-operation between the weight and the shaft. Instead the only purpose of the weight, when it is placed upon the top of the coil of hides after the for-

ward and back movement of the shaft is completed, is that it is then to be pressed downward as a secondary operation to compress the coil of hide edgewise and compensate in a measure for the previous stretching lengthwise. The weight is entirely uncontrolled except as it is lifted up or pressed down by the hands of the operator.

In the defendants' machine there are two movable false heads, one near each end of the crib, whereby the space for the hides, be they smaller or greater in bulk, may be always maintained centrally, measuring lengthwise of the machine. These false heads are always in place in the machine and always co-operate with the shaft during the revolution of the latter. The purpose of these false heads is to confine the hides within a narrow compass, to produce any desired amount of end pressure upon the opposite ends of the coil of hides, and in co-operation with the bars composing the cage to always hold the hides up to their work with the requisite degree of pressure during the revolution of the shaft, and so that the softening may be properly and uniformly effected.

These two false heads are connected together by a system of right and left hand screws and suitable gearing, so that they may be moved towards or from each other simultaneously, and while always under the control of the operator they are always held firmly and rigidly up to their work by the right and left hand screws referred to. Thus when the hides are first put into the machine the false heads are set up against the ends of the coil to the required degree and held there by the right and left hand screws. As the hides become somewhat less rigid they require less room, and then the false heads are made to approach each other so as to contract the space for the hides, and re-set in position. Still later, as the hides get considably heated as the result of the continued operation, they will expand and require more room. The false heads are

then drawn apart and again re-set in the proper position. Coupe's Dep., Int. 136, p. 94.

Thus there is always in the defendants' machine a co-operation between the shaft, the cage, and the false heads, which is never the case in the machine of the Royer patent.

In addition to the above differences in the character and mode of operation of the two machines, the difference in the method of attaching the hides to the central shaft is also important, and attended with different results. Thus with the slotted shaft of the patented machine the hides can be attached at most at only two points upon the periphery of the shaft, whereas in the defendants' machine the hides may be attached at numerous points about the periphery of the shaft. As a result of this difference, if a number of hides be attached to the shaft of the patented machine, they must overlie each other at the point of attachment, thereby causing a big bunch at the bend, whereas in the defendants' machine, the points of attachment being distributed around the periphery of the shaft, there is instead a series of small bends, thereby producing a much more nearly cylindrical coil. Coupe's Dep., Int. 125, p. 93.

Again, in the patented machine, with the elongated slot, if many hides are to be attached to the shaft, they must necessarily be distributed along the length of the shaft, and near the ends thereof. As a result, when the weight comes to be pressed down, it is liable to come in contact with the point of attachment of the upper hide and tear it away from its fastening. This is not the case in defendants' machine. In fact it would be practically impossible to make use of two movable false heads and operate them as they are operated in defendants' machine, if that machine embodied a shaft provided with an elongated slot as shown and described in the Royer patent and specified in the first

claim thereof. Coupe's Dep., Int. 137, p. 95; X Int. 330, p. 116.

Another difference between the patented machine and the defendants' machine consists in the fact that in the patented machine the cage bars are fixed and non-adjustable, whereas in the defendants' machine the cage bars are radially adjustable toward and from the shaft. This difference in construction is likewise attended with a difference in operation and a difference in results. Coupe's Dep., Int. 150, 153, p. 97.

It will be observed that the testimony of Mr. Coupe as to the peculiarities of operation of the Royer machine, or of any vertical machine, is fully corroborated by Herman Royer himself in his disposition given in another case, as above quoted, and one of the plaintiff's experts, Mr. Livermore, frankly admitted that the difference between a horizontal and a vertical machine would be important and material if "the weight of the column of hides is enough to produce an effect in the operation." Int. 17, p. 68. As has been shown, the weight of the column of hides is enough to produce a marked and decided effect in the operation.

Such being the differences in the mode of operation of the two machines and in the results produced, the court was asked to instruct the jury as follows, Rec. p. 7:

> "That if they should find as a fact that the substitution by the defendants of a horizontal shaft and a surrounding horizontal crib in place of a vertical shaft and a surrounding vertical crib, and the substitution of two end pressure plates arranged to approach toward or recede from each other by a positive movement under the control of the operator in place of the single pressure weight described and shown in the plaintiffs' patent, produced an effect different in kind from the effect produced when a vertical crib and pressure weight is employed in the operation of fulling hides, then it would be their duty to find a verdict for the defendants."

This instruction was asked for under a well established principle of the patent law, in support of which it is scarcely necessary to cite authorities. Reference may, however, be made to the following cases:

Winans v. *Denmead*, 15 How. 330.

Sewall v. *Jones*, 91 U. S. 171.

In the latter case the court says, p. 183:

> "To constitute an infringement, the thing used by the defendant must be such as substantially to embody the patentee's mode of operation, and thereby to obtain the same kind of result as was reached by his invention."

The court declined to give the instruction asked for, but instead instructed the jury as follows, p. 7:

> "There is one difference as to which there is other testimony and to which I have not made reference. There is a difference in the position of the attitude of the machines. One of them is said to be vertical and one of them is said to be horizontal. One of them, as it might be said, stands upright and the other lies down on its side. Now, from that change which the defendant Coupe made, taking this" (the plaintiffs') "machine (for, as I say, we assume that he knew of the existence of it) and conceiving it to be an advantage to lay it down on its side, to make it horizontal instead of vertical, it followed that there must be a change made in the operation of the head or plunger which pressed the hides, because when it stood upright it would remain in its place by its own weight. If it was laid down on its side the weight would be likely to fall out of its place, and the weight of the plunger itself might be an inconvenience instead of a convenience in the operation. It was, therefore, necessary if this machine was to be changed into a horizontal machine, or if, to speak more accurately, the attitude of the mechanism was to be changed, it was necessary to make a different device for the purpose of compressing the hides. That is done in a very simple and ingenious way here by using a comparatively thin false head or plunger, and moving it by a screw which moves it forward and back as may be required. Those two changes, therefore, go together, as it were—one is a consequence of the other and they form the most obvious difference to the eye between the two machines. Regarding that change this claim is made by the defendant. He claims

that the change results in a radically different method of operation of the two machines. To state it in the language used in the patent law, he claims that there is a difference of function, which means simply that there is a difference in the manner and result of the operation of the two machines caused by laying one of them on its side. You are not to assume, gentlemen, that that is not possible. The change is slight in its general aspect. There is no change in the structure of the machine—it is simply a change in the attitude of the machines in relation to the plane of the horizon. Nevertheless, you are to consider that changes smaller than that have sometimes resulted in very large differences in the method of operation. You must, therefore, with unprejudiced minds enter upon the consideration of the question, when you retire to your room, whether there be any difference in the operation of these two machines, the one standing vertical or erect, the other standing horizontal or lying upon its side

"Now, what is the nature of the difference which the defendant claims? He claims that the difference is this: that the machine in a horizontal position will break the hides so that they can be used for useful purposes in the arts, and that the machine standing in a vertical position will not accomplish this work. To use his phrase, the phrase of the patent law, the machine is not operative; or, to use a phrase equally accurate and perhaps more easily comprehended, that this machine will not do the work which it is appointed to do. If that be so, gentlemen, there is not only a radical difference in operation, but there is evidently a defect in the original patent, so that if that claim made by him is true, he has two defences, either one of which is a sufficient answer to this case. That is to say, while the machine described by the plaintiff as being a vertical machine will include horizontal machines also, and while it is true that a horizontal machine will infringe this patent for a vertical machine if it appears that the operation of the machine is substantially the same in the one position or the other; on the other hand you will understand that if it appears that a horizontal machine will work and is operative, and that a vertical machine will not work and is not operative, then you must confine the plaintiff to that interpretation and meaning of his patent which confines him to vertical machines alone.

"It is not necessary for me to elaborate the legal principle contained in this. It would not interest you, and perhaps would tend rather to confuse than to elucidate what I have

> to say, and I, therefore, make one statement which for practical purposes, for your purposes, covers the whole question. If you find that a machine made with this shaft, crib, and weight, and standing so that the shaft is vertical, that is to say, is upright, will not break hides, will not do the work which it is expected to do, then, in that case, the defendant is entitled to your verdict. If you find that it will do that work, then the plaintiff is entitled to your verdict so far as this question is concerned. You are not to consider, gentlemen, which does it the best; you are not to choose between the two machines; you are not to consider whether one machine makes more trouble than the other, whether one makes work more uniform than the other and more desirable in the market, whether one is better able to perform the work, whether one does it with a less amount of power, whether is is easier in one to load or unload than in the other, whetherthe machine is more under the control of the operator in one case than in the other, or whether the crib in one case is more adjustable than in the other. These considerations are of no consequence. To put it more shortly, the question to be determined by you is not which of these machines is the better machine, but simply and solely, will a machine made with a vertical shaft do the work at all? Now, as to that you must consider the large amount of testimony that has gone in here."

The first error in this instruction is that the court did not leave it to the jury to determine from the evidence submitted whether the difference between the two machines amounted to a difference of construction, or was merely a difference in the attitude or position of the machine, but instead the court told the jury positively and without qualification that there was no difference in structure between the two machines, but only a difference in the position of the machines. The exact language of the court in this connection, to quote it again, was this, p. 8:

> "There is no change in the structure of the machine—it is simply a change in the attitude of the machines in relation to the plane of the horizon."

This was plainly usurping the province of the jury. It was for the jury to say, upon the evidence submitted,

whether the difference was, or was not, a difference in construction, and not merely a difference in position or attitude.

The next error is that the court not only failed to state to the jury what the claim of the defendants was, but entirely misstated it.

The claim of the defendants was that the defendants' machine operated *differently* from the machine of the Royer patent, and produced *different* results. This the court did not state to the jury, but instead the court stated the defendant's claim as follows:

> "He claims that the difference is this: that the machine in a horizontal position will break the hides so that they can be used for useful purposes in the arts, and that the machine in a vertical position will not accomplish this work. To use his phrase, the phrase of the patent law, the machine is not operative; or, to use a phrase equally accurate and perhaps more easily comprehended, that this machine will not do the work which it is appointed to do."

In the first place it will be noted that in this passage the court practically repeats the statement that there is no difference between the two machines,—the patented machine and the defendants' machine,—except a difference in position, and again tells the jury in effect that the two machines are the same except that one stands in a horizontal, and the other in a vertical, position.

In the next place it will be seen that the court stated the defendants' claim as being that the difference between the two machines was that the defendants' machine was an operative machine, while the patented machine was an inoperative machine. This was an entire misstatement of defendants' claim. The claim of defendants in this connection was, not that the defendants' machine would do the work of softening hides and that the patented machine would not do that work, but instead that the defendants' machine did the work of softening hides *in a different way*,

and produced *different* results, from the machine of the patent, and that therefore the defendants' machine did not embody the invention described and claimed in the Royer patent.

To show how far the court went in this connection attention is called to two or three passages in the instructions of the court to the jury upon the point in question. The court said, pp. 8, 9:

> "On the other hand you will understand that if it appears that a horizontal machine will work and is operative, and that a vertical machine will not work and is not operative, then you must confine the plaintiff to that interpretation and meaning of his patent which confines him to vertical machines alone."
>
> . . . . . .
>
> "If you find that a machine made with this shaft, crib, and weight, and standing so that the shaft is vertical, that is to say, is upright, will not break hides, will not do the work which it is expected to do, then, in that case, the defendant is entitled to your verdict. If you find that it will do that work, then the plaintiff is entitled to your verdict so far as that question is concerned."
>
> . . . . . .
>
> "To put it more shortly, the question to be determined by you is not which of these machines is the better machine, but simply and solely, will a machine made with a vertical shaft do the work at all?"

In short the court, instead of instructing the jury, as requested to do, that if they found that the defendants' machine operated in a different way and produced different results, from the patented machine, then their verdict should be for the defendant, directly instructed the jury that the only question for them to determine in this connection was whether the patented machine was operative or would do the work of softening hides at all, and that if they found that it would do the work, no matter in what manner or with what kind of results, then their verdict should be for the plaintiffs upon the question of infringement.

It is plain that this instruction took away from the jury entirely the consideration whether the defendants' machine did or did not operate in a different manner and produce different results from the patented machine, and all consideration of the evidence to that effect, and in fact took away from the jury every consideration bearing upon the question of infringement, except only the question whether the patented machine was operative or not. The jury were instructed that the only thing for them to consider upon the question was whether the patented machine was operative or would do the work at all, and were instructed that if they found it was operative, or would do the work of softening hides in any way whatever, and with any kind of result, then they must find the defendants' machine to be an infringement on the plaintiffs' patent.

We submit that this instruction was without warrant in law, and that the giving of such instruction, and the refusal to give the instruction requested, was error by reason of which the case should be remanded for a new trial.

The operativeness of a patented machine may be a question affecting the validity of the patent therefor, but it is an entirely separate and distinct question from the question whether the defendants' machine is like the patented machine and an infringment of the patent. In the present case the court appears to have confused the two questions, or to have ignored the distinction between them.

The Third Assignment of Error.

The third assignment of error is as follows:

> "3. Because the court erred in its instructions to the jury as to the rule for the determination of what does constitute a mechanical equivalent in a machine and as to the application of the doctrine of mechanical equivalents to the plaintiffs' patent, as set forth in the third exception.

This assignment of error is based upon the third exception, which raises specifically the question as to what does and what does not constitute under the law a mechanical equivalent for a device or element described and claimed in letters patent, and which refers more especially to the question of the equivalency of the two false heads in the defendants' machine for the weight in the patented machine, and to the question of infringement of the second claim of the Royer patent. Rec. p. 9:

The court was requested to instruct the jury as follows:

> "That a mechanical equivalent for a device shown in letters patent is a thing which performs the same result in substantially the same way or by substantially the same mode of operation as the device described in the patent, and that if the jury should find from the evidence and testimony in the cause that under this rule the pressure plates controlled as to their movements and as to the degree of pressure to be exerted by them, by right and left hand screws, at the pleasure of the operator, were not the equivalents, in a horizontal hide-fulling maching, of the pressure weight in a vertical machine, then the jury ought to find a verdict that the defendants do not infringe the second claim of the plaintiff's patent."

This instruction the court declined to give, but instead gave to the jury the instructions already quoted in connection with the first and second assignments of error. In those instructions, it will be remembered, the court did not state to the jury the law as to equivalents, or leave it to the jury to determine, under the law and the evidence submitted, whether the parts or devices composing the defendants' machine were or were not mechanical equivalents for the parts or devices described and claimed in the plaintiffs' patent, but instead the court instructed the jury in effect that the parts or devices of the defendants' machine were the equivalents of the parts or devices called for in the patent, and, as already pointed out, practically directed the jury to find a verdict for the plaintiffs upon the question of infringement.

We submit that the refusal of the court to give the instruction asked for was error, and that the instructions given by the court upon the subject were without warrant of law.

That the law as to mechanical equivalents is as stated in the defendants' request for instructions is too well established to require discussion. The law upon the subject is fully stated in the case of *Machine Co. v. Murphy*, 97 U. S. 120, as follows, p. 125:

> "Except where form is of the essence of the invention, it has but little weight in the decision of such an issue, the correct rule being that, in determining the question of infringement, the court or jury, as the case may be, are not to judge about similarities or differences by the names of things, but are to look at the machines or their several devices or elements in the light of what they do, or what office or function they perform, and how they perform it, and to find that one thing is substantially the same as another, if it performs substantially the same function in substantially the same way to obtain the same result, always bearing in mind that devices in a patented machine are different in the sense of the patent law when they perform different functions, or in a different way, or produce a substantially different result."

The Fourth Assignment of Error.

The fourth assignment of error is as follows:

> "4. Because the Court erred in its instructions to the jury as to the proper course to be observed in constructing a a working machine from letters patent for the purpose of determining whether it be or be not an operative machine in the sense of the patent law, as set forth in the fourth exception."

The defendants, believing that the machine of the Royer patent, if practically operative at all, operated in a different manner and produced different results from their machine, decided to have a full-size working machine constructed in exact accordance with the drawings and specification of

the patent, and to test the same to determine whether their opinion was correct or not.

The primary object in having this machine constructed was to ascertain *how* such machine operated, and with what results, and whether it operated in the same manner as did the defendants' machine. Another object was to ascertain how the patented machine compared with the fulling mill and other old machines as a means for softening hides.

The results of the tests made with the machine so constructed, and which will be found fully set forth in the testimony of Mr. Coupe and in a memorandum made at the time, Rec. pp. 84, 89, were such as to convince the defendants, not only that the machine of the Royer patent, so far as it operated at all, operated in an entirely different manner and was productive of entirely different results from the defendants' machine, but also that the machine, as shown and described in the patent, was a practically inoperative machine, or at least was wholly unadapted for practical use. The defendants therefore introduced testimony to show the inoperative character of said machine, and sought whatever benefit they might be entitled to in view of the facts presented.

The court was not asked to instruct the jury that, if they believed the testimony tending to show the inoperativeness of the patented machine, they should on that account alone find a verdict for the defendants, and our complaint as to the instructions of the court in this connection is based upon the ground that such instructions were generally misleading, and tended to create the impression that the course pursued in building the experimental machine was not the proper course, and that the experiments were not fairly and properly made, and thus tended to prejudice the defendants in the minds of the jury.

The facts are these: Mr. Coupe handed a copy of the

specification and drawing of the Royer patent to Mr. Lee, the foreman of the Franklin Machine Co., a large and reputable machine shop in the city of Providence, and requested him to build a machine in accordance therewith. Coupe's Dep., Int. 64 p. 83; Lee's Dep., Int. 7, p. 50.

The machine was built by the Franklin Machine Co., under Mr. Lee's superintendence, directly from the specification and drawings of the patent, and without any knowledge on the part of Mr. Lee as to the purpose for which the machine was wanted. Lee's Dep., Int. 7, 9, p. 150.

It seems that in the course of building the machine Mr. Lee thought it was impracticable, and called Mr. Coupe's attention to the fact by telephone, and that Mr. Coupe instructed him to make the machine as near to the patent as he possibly could. Lee's Dep., Int. 13, p. 151.

Defendants' Model of Plaintiffs' Machine, which will be before the court at the argument, is an exact model of the machine so constructed. Lee's Dep., Int. 23, 24, p. 151.

The only criticism which the plaintiffs were able to make of this model was that the set-screws in the slotted shaft are somewhat longer than those shown in the drawings of the Royer patent. This difference was due to the fact that when Mr. Lee came to examine the drawings of the patent, he found that the set-screws as shown therein were not of sufficientl ength to clamp the hide. He accordingly made the set-screws somewhat longer than shown, and so that they would be long enough to clamp the hide. Lee's Dep., Int. 40-46, p. 152.

When asked why, instead of lengthening the set-screws, he did not countersink the shaft so as to receive the heads of the screws flush therein, he replied that the drawings of the Royer patent do not show the shaft as provided with any such countersink, or any provision for receiving the heads of the screws in flush, but instead show the heads of the screws as projecting. Lee's Dep., Int. 50, 52, p. 153.

Thus it appears that the machine in question was built, not by Mr. Coupe, but by a third party; that it was built by competent mechanics from the specification and drawings of the Royer patent, and directy in accordance therewith, with the single exception that the set-screws were lengthened somewhat to make them effective; and that if the projecting heads of the screws, which is the only criticism made upon the machine, contributed in any way to the defective working thereof, the machine corresponds in this respect directly with the drawings of the patent.

In this connection it may be noted that the difficulties encountered in attempting to operate the machine were due only in small part to the projecting heads of the screws, and it appears from Mr. Royer's testimony that he experienced with his machine, in which the heads of the set-screws were presumably countersunk, practically the same difficulties which Mr. Coupe experienced with the experimental machine. Royer's Dep., X Int. 304, p. 47.

Such being the facts with relation to the machine which Mr. Coupe had built, what did the court say to the jury upon the subject? The portion of the charge in question will be found on pages 10, 11 and 12 of the record, to which reference is made. It is submitted that the portion of the charge referred to was erroneous, and that its whole tenor would necessarily have the effect to create the impression that the course pursued by the defendants in connection with the building and operating of the machine was improper and unfair, and would tend to prejudice the defendants in the minds of the jury. We further submit that the facts in no way warranted the animadversions of the court, and furnished no foundation for creating any such impressions in the minds of the jury as would tend to prejudice them against the defendants by reason of the course pursued by them in building and testing the machine in question.

The Fifth Assignment of Error.

The fifth assignment of error relates to the matter of damages and is as follows:

> "5. Because the court erred in its instructions to the jury on the subject of the rule incumbent upon the plaintiff in the proof of damages in an action for infringement of letters patent, as set forth in the fifth exception."

This is an action at law, and the only recovery sought, and the only recovery which could possibly in such an action be sought, is the *actual damages* proved to have been suffered by the plaintiffs. As heretofore pointed out, the plaintiffs knew of the use by the defendants of the alleged infringing machines for at least four years prior to the commencement of this action. Notwithstanding this knowledge they took no steps to prevent such alleged infringement, but purposely waited until the patent had expired and then commenced this action at law, accompanied with an attachment for five hundred thousand dollars upon the defendants' property. By this course they deliberately waived all right to an injunction and all right to an accounting of profits made by the defendants, and chose to rely instead upon the recovery of such actual damages as they could prove they had suffered.

Accordingly the allegation of the plaintiffs' declaration, after alleging that they have been greatly injured, and "have sustained actual damage to the amount of five hundred thousand dollars," is that "by force of the statute aforesaid an action hath accrued to them to recover said actual damages." Rec. p. 3.

Notwithstanding the very large amount of actual damage alleged in the declaration to have been sustained by the plaintiffs, they entirely failed to prove that they had, as a matter of fact, suffered any actual damage whatever. Instead all that the plaintiffs did was this: Having proved

that the defendants had softened upon their machines upwards of sixty-six thousand hides, Herman Royer was asked if he knew how the cost of softening rawhide by mechanical action by any other known devices than as described in his patent compared with the cost of manufacturing or softening rawhides with the patented machine, and Royer having stated that he did know, and that there was a difference in cost, (Ints. 123, 124, p. 29) he was then asked the following question, p. 30:

> "Int. 125. How nearly can you *approximate* to what that difference is?"

To this question his answer was:

> "Well, the difference is a matter of $4 or $5 a hide."

Counsel for plaintiffs, evidently intending to claim that the saving in cost should be taken as the measure of plaintiffs' damages, and realizing what an extravagant sum would result from Royer's figures ($264,000, at $4 a hide, and $330,000 at $5 a hide) then asked Royer, Int. 127, if he knew whether the difference in cost would be more or less than one dollar per hide, to which Royer replied that it would be more than one dollar per hide.

And it was upon this sum of one dollar per hide that the plaintiffs finally relied as a measure of their damages, which if accepted as the proper measure would have resulted, upon the sixty-six thousand hides softened by the defendants, in the sum of $66,000. The verdict of the jury was for the sum of $18,000.

It will thus be seen that the plaintiffs failed to prove any actual damage whatever; that they simply had Royer *approximate* the difference in cost of softening a hide by the patented machine as compared with other known machines; that they abandoned this approximate estimate of Royer's, and selected a purely *arbitrary* sum as the amount of the difference in cost; that assuming the sum thus arbitrarily selected to be the measure of the value to

the defendants of the patented invention and consequently the measure of the defendants' profits or gains from the use of their machines, and further assuming such gains and profits thus arrived at to be the measure of the plaintiffs' loss or damage, asked for a verdict for the sum of $66,000.

This course was approved by the court, and the jury were told in so many words that "the course taken by the plaintiff to show the amount of damages is a proper course."

The instructions of the Court upon this matter of damages as set forth in the bill of exceptions, is as follows: Rec. p. 13, et seq.:

> "The course taken by the plaintiff to show the amount of damages is a proper course. He undertakes to show the value of this invention to any person using it, and the law deems it a fair inference that whatever value has been received by the defendants through the use of this invention, so much has been taken away from the plaintiff, and he is entitled to have it restored to him. Upon the amount of those damages you have the testimony, if I remember right, of only one witness. Mr. Royer himself has made an estimation, as he states, of the amount of money which would be saved by the use of this particular mechanism for the performance of this particular operation in the course of the production of rawhide leather. There is no evidence as to the amount of advantage or profit from the employment of other devices for other purposes, either for the preparation of the leather before it goes through this machine or afterwards, but you heard his testimony to the effect that three or four dollars a hide is not an extravagant estimate of the amount of saving which would be made by the use of this mechanism of his, over and above any other device which was at the time of his invention in use and which the public had a right to use. That estimation, if you are satisfied with the fairness of it, may be taken as the basis of your calculations. You ought, however, to observe the statement made by the plaintiff himself that for the purpose of certainty or for other purposes he chooses that you shall take a considerable smaller sum, and which, according to his testimony, is clearly within the value of this invention—that is to say, the sum of one dollar for each hide. You will bear

> in mind that it is one dollar for a hide which is thus estimated, and not one dollar for a side of leather. If you believe his testimony to be sound and in accordance with the truth, then you may make up your verdict on that basis, that being, I think, the only testimony in the case as to the amount of damages."

We submit that such instructions were wholly erroneous and without warrant in law, and that under the evidence submitted the plaintiffs were entitled to recover at the most only nominal damages.

The law provides two remedies for the infringement of a patent—one an action at law for damages, the other a suit in equity for an injunction and an account of profits. Formerly, and prior to the Act of 1870, a patentee had to decide beforehand whether he desired to recover the damages which he had suffered, or the profits which the defendant had made, and to bring this action at law for the one or a suit in equity for the other. By the Act of 1870 it was provided, and the provision is retained in Sec. 4921 of the Revised Statutes, that a complainant in a suit in equity might recover, in addition to the profits to be accounted for by the defendant, the damages which the complainant has sustained by the infringement. The purpose of this provision was to enable a complainant in a suit in equity, if it turned out that the defendant had made no profits, or that the defendants' profits were less than the amount of the complainants' damages, to recover the amount of such damages.

No corresponding provision, however, was made that in an action at law the plaintiff could recover, in addition to the damages which he had suffered, or as a measure of such damages, the profits which the defendant had made. The law remains that in an action at law the recovery is the damages which the plaintiff has suffered, and by the provision of Sec. 4919 of the Revised Statutes the damages to

be found by the jury are to be limited to the *actual* damages.

To entitle the plaintiff to a recovery in an action at law, therefore, he must show that he has suffered actual damage, and must prove the amount thereof. The only way in which a plaintiff can show that he has suffered actual damages is by proving that he has suffered an actual money loss by reason of the defendants' infringement.

In cases where the patentee has elected to derive his benefit from his patent by the grant or sale of licenses thereunder, it has been held that the measure of his damages is the amount of his established license fee, and this because that is the amount of money which he has lost or been deprived of.

In cases where the patentee has elected to maintain a monopoly of the manufacture, use or sale of the patented invention, we submit that the only way in which he can properly show that he has suffered an actual money loss is by proving that by reason of the invasion of his monopoly by the defendant, his business has been injured, either by a lessening of his sales or by a necessary reduction of his prices, and that consequently he has been deprived of profits and of actual money returns which he would otherwise have received, and to lay the basis for a recovery he must prove clearly and definitely the amount of such money loss, or at least furnish the necessary data from which it can be computed.

In all cases where the plaintiff can thus show that he has suffered an actual money loss, there can be no doubt that it is his duty to do so, and that such loss is the true measure, and the only measure, of the damages to be recovered by him.

The question then arises whether, in case the plaintiff in an action at law is unable, or has failed, to prove any such direct and actual money loss, he can lay the founda-

tion for a recovery in any other way. We submit that he cannot; that his action being solely for the recovery of actual damages, if he cannot, or does not, show that he has suffered any such actual damage or loss, there is no basis whatever for any recovery.

It has been sometimes suggested, and there may perhaps be cases indicating, that in case the plaintiff is unable to show any actual damage or loss, he may then show either the profits and gains made by the defendant from the use of the patented invention, or what is in effect the same thing, the money value or advantage attending the use of the invention, and then be entitled to have the amount of defendants' profits, or of the gains attributable to the use of the invention, taken as the measure of his damages and as the amount of his recovery. We submit that there is no foundation for such course, and that it is entirely unwarranted in law. Were such course permissible, it would be equivalent to saying that a plaintiff in an action at law is entitled to have an accounting of defendants' profits or gains and to recover the same, for it would be no less a recovery of such gains or profits that they should be called damages, or be taken as the measure of damages.

It is by a suit in equity alone that a defendants' gains or profits can be recovered, and it makes no difference in this connection whether the sum to be recovered is to be determined by ascertaining the profits of the defendants' business, or by ascertaining the gains and savings made by him from the use of the patented invention. It has been held that if a defendants' business has been generally unprofitable, but he has nevertheless derived gains and savings from the use of the invention, he is still accountable in equity for the amount of such gains or savings. But it is only in a suit in equity that such gains or savings can be recovered.

Neither the profits of a defendant, nor the gains and sav-

ings accruing to him from the use of a patented invention, constitute a measure of the plaintiffs' loss or damage. The fact that a defendant has made profits or gains by reason of an infringement is no evidence, either actual or presumptive, that the plaintiff has suffered a damage or loss because of such infringement. Much less is the amount of a defendant's profits or gains any evidence or measure of the amount of the plaintiffs' damage, if he has suffered any. A defendant may have made very large gains or profits, and yet the plaintiff may not have suffered any loss or damage whatever. On the other hand a defendant may not have made any gains or profits, and yet the plaintiff may have suffered great loss or damage. It was because of the recognition of this fact that Congress, in the Act of 1870, provided that in a suit in equity a complainant may recover, in addition to the profits to be accounted for by the defendant, the damages the complainant has sustained, in order that if it turned out in any given case that the the defendant had made no profits, or had made very small profits, the complainant might prove and recover the damages which he had sustained. If a patentee had suffered no damage and sought to recover the defendant's profits or gains, it was assumed that he would of course bring his suit in equity for that purpose. It was not contemplated that in such a case the patentee would elect, as the patentees in the present case have done, to wait until his patent had expired, and then bring an action at law.

Even in cases where it is proven that but for the infringement the plaintiff would have done all the business which the defendant did, it is not seen why the gains and profits made by the *defendant* in doing that business should be a measure of the plaintiffs' loss or damage in an action at law. The defendant may have greater or less facilities for doing the business economically than the plaintiff had, and the defendant may have made greater or less profits or

gains than the plaintiff would in doing the same business. Because the defendant made a gain or profit of one hundred dollars in doing a certain amount of business, it does not follow that the plaintiff would have made the same amount of profit in doing the same business, and it consequently does not follow that the plaintiff lost the sum of one hundred dollars because he did not have the business to do.

The thing to be ascertained in an action at law being the loss or damage suffered by the plaintiff, it is not seen how the matter of gains and profits, or the matter of the advantage accruing from the use of the patented invention as compared with other machines or devices, can come in, even as an element, except in the way of showing what gains or profits the *plaintiff* would have made, if he had done the business which the defendant did, and then only in cases where the plaintiff proves that but for the defendant's infringement he would necessarily have done all the business which the defendant did. If a plaintiff can satisfactorily prove that he could have done, and but for the infringement he would necessarily have done, all the business which the defendant did, and also proves clearly and definitely just what gains or profits he actually made in doing the business which he did do, it would perhaps be a fair inference that the plaintiff lost the proportionate gains or profits on the additional amount of business which he might have done, but which he did not do because of the defendant's infringement. Such actual money loss might fairly be, in such a case, a measure of his damage and of his recovery.

The value of the patented invention, or the advantage to be derived from its use, therefore, enters into a detemination of the plaintiffs' damages in an action at law only to the extent that the same may be of assistance in ascertaining what gains or profits the plaintiff might have

made *in cases where he has proved that but for the infringement he could and would have done all the business which the defendant did*, and consequently what loss or damage the plaintiff suffered by reason of not having that business to do. In other words, it is the value or advantage of the invention to the *plaintiff*, and not the value or advantage of the invention to the defendant, which can be an element in ascertaining the plaintiff's damages in an action at law in cases where the plaintiff has proved that but for the infringement he could and would have done all the business which the defendant did.

It is submitted that the value or advantage which has been received by the defendant is never in any case, in an action at law, a measure of the plaintiff's loss or damage, or a measure of the amount "taken away from the plaintiff," as stated by the court below. The advantage attending the use of the invention by the defendant may well be a measure of the gains or savings derived by the defendant therefrom, and thus may be a measure of the defendant's profits to be recovered in a suit in equity, but such advantage to the defendant is not ordinarily a measure of the plaintiff's loss. In an action at law the recovery must be what the plaintiff has lost.

That the plaintiff's damage is something entirely separate and distinct from the defendant's gains or profits, and in no way related thereto, is evidenced by the provisions of Sec. 4921, which provides for the recovery, in a suit in equity, of damages, *in addition to* the profits to be accounted for by the defendant. The damages provided for by this section correspond precisely to the damages to be recovered in an action at law, and such damages must plainly be ascertained and determined separately from, and without relation to, the gains or profits of the defendant.

While we are not aware of any case in which the precise question now presented has been determined by this

court, we submit that the views above expressed are directly in accord with the principles which have been established in the various cases in which the question of recovery in patent cases has been considered. An examination of these cases discloses that by far the great majority of them were suits in equity, and that what was said therein relates especially, if not entirely, to the measure of recovery in such suits. But a very few of the cases have been actions at law, and it may perhaps be said that as to such cases the rules as to the measure of recovery have not become so definitely established. We believe, however, that the rules so far as established lead directly to the position for which we contend.

Thus it is established that where there has been such a number of sales of licenses to make, use, and sell the patented invention as to establish a regular price for a license, that price may be taken as a measure of damages against infringers.

Seymour v. *McCormick*, 16 How. 480;
Rude v. *Westcott*, 130 U. S. 165, and cases cited.

Again it was held in *Seymour* v. *McCormick*, *supra*, that

> "Actual damages must be actually proved, and cannot be assumed as a legal inference from any facts which amount not to actual proof of the fact. What a patentee 'would have made, if the infringer had not interfered with his rights' is a question of fact, and not a 'judgment of law.' The question is not what speculatively he may have lost, but what actually he did lose." p. 490.

In *New York* v. *Ransom*, 23 How. 487, it was said:

> "Where a plaintiff is allowed to recover only 'actual damages', he is bound to furnish evidence by which the jury may assess them. . . . Actual damages must be calculated, not imagined, and an arithmetical calculation cannot be made without *certain* data on which to make it."

In *Philp* v. *Nock*, 17 Wall. 460, the court said:

> "If that test [a license fee] cannot be applied, he will be

entitled to an amount which will compensate him for the injury to which he has been subjected by the piracy."

In *Burdell* v. *Denig*, 92 U. S. 716, it was said:

"Profits are not the primary or true criterion of damages for infringement in an action at law. That rule applies eminently and mainly to cases in equity."

In *Birdsall* v. *Coolidge*, 93 U. S. 64, the court reviews the character of the remedies open to a patentee whose patent has been infringed, refers to the change made by the Act of 1870, and explains the effect of that change. The court says, p. 68:

"Prior to the passage of the act of the 8th of July, 1870, two remedies were open to the owner of a patent whose rights had been infringed, and he has his election between the two: he might proceed in equity and recover the gains and profits which the infringer had made by the unlawful use of his invention, the infringer in such a suit being regarded as the trustee of the owner of the patent as respects such gains and profits; or the owner of the patent might sue at law, in which case he would be entitled to recover, as damages, compensation for the pecuniary injury he had suffered by the infringement, without regard to the question whether the defendant had gained or lost by his unlawful acts,—the measure of damages in such case being not what the defendants had gained, but what the plaintiff had lost.

"Where the suit is at law, the measure of damages remains unchanged to the present time, the rule still being, that the verdict of the jury must be for the *actual* damages sustained by the plaintiff."

The court then proceeds to consider the effect of the Act of 1870 upon the recovery in equity suits, and says, "Gains and profits are still the proper measure of damages in equity suits." But there is no statement or suggestion that gains and profits are, or can be, in any a measure of damages in actions at law.

The cases of *Mowry* v. *Whitney*, 14 Wall. 434; *Cawood Patent*, 94 U. S. 695; and *Elizabeth* v. *Pavement Co.*, 97 U. S. 126, in which it is declared that the gains and profits of the defendant are the measure of recovery, were all

suits in equity, and what is said therein upon the subject relates to suits of that character.

In *Root* v. *Railway Co.*, 105 U. S. 189, in which it was decided that, except under special circumstances, a suit in equity for the infringement of a patent could not be maintained after the expiration of the patent and after the right to an injunction had terminated, the question of recoveries in patent cases were fully discussed and the cases relating thereto carefully reviewed. While the question now under consideration was not before the court at that time, we do not find anything in the opinion in that case which gives any authority for adopting the defendant's gains and profits as a measure of the plaintiff's damages in an action at law.

In *Tilghman* v. *Proctor*, 125 U. S. 136, which was a suit in equity, the rules as to recovery in patent cases were again considered by the court, and the distinction between the rules to be applied in actions at law and in suits in equity fully recognized. The court said, p. 143:

> "The principal question of law now presented is as to the general rule that should govern the amount to be recovered. The defendants contend that the plaintiff, having established license fees for the use of his patent, is not entitled to any gains and profits accruing to the defendants, in excess of those fees. The plaintiff contends that, as the profits to be accounted for exceed the damages, he has the right, waiving the damages found by the master, to have a decree for profits.
>
> "In an action at law for the infringement of a patent, the plaintiffs can recover a verdict for only the actual damages which he has sustained; and the amount of such royalties or license fees as he has been accustomed to receive from third parties for the use of the invention, with interest thereon from the time when they should have been paid by the defendants, is generally, though not always, taken as the measure of his damages.
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> . . . . . .
>
> "But upon a bill in equity by the owner against infringers of a patent, the plaintiff is entitled to recover the amount

> of gains and profits that the defendants have made by the use of the invention.

And the court in that case held that, as the suit was in equity and not at law, the plaintiff was not limited to the amount of his established license fee, which would be the measure of damages in an action at law, but was entitled to recover the gains and profits of the defendant. Had the case been an action at law, only, the established license fee, that is, only the actual damages, could have been recovered.

In the case of *Rude* v. *Westcott*, 130 U. S. 152, which was likewise a suit in equity, the complainant waived all claim for profits, and relied upon proofs produced as establishing a fixed license fee or royalty as the measure of damages, damages as well as profits being recoverable in a suit in equity. The master to whom the case was referred found that the proofs did not satisfactorily show an established license fee, and therefore proceeded to estimate the value of the patented invention to the defendants, practically upon a theory of his own, and awarded a certain sum as damages to the complainant. The court below did not accept the finding of the master, but without giving any reason for its action, awarded a certain other sum as damages. Upon these facts this court said, p. 167:

> "By the decision rendered a settled rule of law was violated, that actual, not speculative, damages must be shown, and by clear and definite proof, to warrant a recovery for the infringement of a patent."

And the court decided that the complainant could recover only nominal damages.

In the case of *Cornely* v. *Marckwald*, 131 U. S. 159, likewise a suit in equity, the complainant claimed damages in addition to profits, his claim for damages being based partly upon an alleged established license fee, and partly upon proof of damage to his business by having

been forced to lower his prices, and from the loss of the sale of the machines which the defendant had sold. The master found that damages were not sufficiently established and awarded only the profits proved. The court confirmed the master's report. This court said:

> "The Circuit Court, in its opinion, held, that evidence of payment made for infringements was incompetent to establish a price as for a fixed royalty; that, as to the loss by the plaintiff from the diversion of sales, he had failed to give any evidence showing the cost of his machines, or what his profits would have been; that, as there was no basis for a computation of the loss of profits, the determination of the master was correct; and that his conclusion was proper as to the alleged loss of the plaintiff by reason of the enforced reduction of his prices. We concur in these views."

This we understand to be a recognition by the court that where a plaintiff seeks to recover *damages* for the loss of sales of the machines which the defendant has sold, he must show what profit he, the plaintiff, made on his own machines, in order that it may be ascertained what is the total amount of such profits that he has lost by not having had the sale of the machines which the defendant sold. Of course as a further foundation for the recovery of such damages for the loss of sales the plaintiff must also clearly prove that he would necessarily have done the business which the defendant did. As was held in *Seymour* v. *McCormick*, *supra*, this is not a matter of law, or a legal inference, but is a matter of fact to be proved by satisfactory evidence.

And where a plaintiff thus seeks to recover damages for injury to his business, the same rule applies, whether the damage be occasioned by the loss of sales of patented machines or by a lessened use of a patented machine, and it makes no difference whether the gains and profits lost to the plaintiff were profits of manufacture and sale or gains and savings derived from the use of the patented machine. In any case the plaintiff must prove what he

has lost and how much. If his loss arise from a lessened use of patented machines, he must prove what gains or savings he actually derived from the use of his machines, what capacities he had for doing business, how many machines he operated, and how and to what extent the defendant's infringement prevented him from deriving as much gains and profits from his business as he would otherwise have done. If he relies upon the value or the advantage derived from the use of the patented machine as a measure of the gains and savings which he has lost, such money value of the invention may become an element in calculating the sum total of the plaintiff's loss or damage, but in such case, just as where the plaintiffs' damage is the loss of profits which would have been derived from additional sales, it is the gains or profits which the *plaintiff* can show that *he has lost* that constitutes the measure of his damages, and not the gains or profits which may have been made by the defendant.

That such should in fairness be the rule will be apparent from the following consideration. If the value or advantage derived from using the patented invention be taken as the basis for calculating the plaintiff's damages in an action at law, it is plain that the plaintiff's loss will be due to the extent that his use of the patented invention has been interfered with, and not to the extent which the defendant has made use of it. If now it happens, as is the fact in the present case, that the plaintiff has limited facilities, does a small business, and from geographical location or other causes has but a narrow market for his goods, whereas the defendant on the other hand has large facilities, a wide market, and does a large business, it is not probable that the plaintiff's business has been damaged or that he has been deprived of gains and profits by reason of the defendant's use of infringing machines, to anything like the extent that gains and profits have been derived by

the defendant therefrom. The plaintiff's business, or his opportunity to derive gains and profits for the use of his machines, may not have been damaged or interfered with at all. In such case he manifestly is entitled in an action at law to nominal damages only. If his business has been interfered with, and he has been prevented from deriving as great gains or profits from the use of his machines as he would otherwise have done, it is incumbent upon him to prove the fact, and to prove to what extent he has suffered loss, and to that extent only can he recover damages. If he elects to take the value or advantage attending the use of the invention as a basis or measure of computation, then such money value of the invention is to be multiplied, not by the extent of defendant's use of the invention, but by the extent to which the plaintiff can show he was deprived of its use. It is evident that in the case supposed there would be likely to be a wide margin of difference between the two amounts, and it would certainly be unfair to say, at least as a mere legal inference, and in the absence of proof, that the plaintiff had been damaged to the full amount of the gains derived by the defendant.

But this is just what the court did in the present case. The plaintiffs entirely failed to show any actual damage as the result of what defendant had done. Instead Royer merely gave an approximate estimate of the value or advantage of using the invention, but without any data from which the correctness of such estimate could be determined. Even this estimate was not taken as the measure of plaintiff's loss, but instead a purely arbitrary sum, and then without attempting to prove that the plaintiffs would have done, or could have done, the business which the defendants did, this arbitrary sum of one dollar per hide was multiplied by the number of hides which the defendants had softened, and it was claimed

that plaintiffs had thus been damaged to the extent of $66,000, this being done solely upon the legal inference that the defendants' gain was, and must necessarily in all cases be, the plaintiff's loss. And the court told the jury that this was a proper course and instructed the jury, as a matter of law, that "the law deems it a fair inference that whatever value has been received by the defendants through the use of this invention has been taken away from the plaintiff, and he is entitled to have it restored to him." Rec. p. 13.

We submit that such instruction was wholly erroneous as applied to an action at law for damages, and in direct violation of the rule that "actual damages must be actually proved," and that the damages must be *actual*, and not speculative.

Since the trial of the present case, the rule for which we contend has been decided by Judge Thayer, in a case arising under this same Royer patent, to be the correct and proper rule.

The case referred to was, like the present, an action at law, and was brought against the Shultz Belting Co. of St. Louis. At the first trial of the case before Judge Treat and a jury, the court directed the jury to find a verdict for the defendant. *Vide* 28 Fed. Rep. 850, and 29 Fed. Rep. 281.

The plaintiffs sued out a writ of error to this court which resulted in the awarding of a new trial for the reasons stated in the opinion of the court. 135 U. S. 319.

At the new trial thus granted the case was tried by consent of parties before the court, Judge Thayer presiding, without the intervention of a jury. The court found infringement of the first claim of the patent, but decided, in a carefully written opinion, that the plaintiff was entitled to only nominal damages. The opinion is reported at 45 Fed. Rep. 51.

In this opinion Judge Thayer considers fully the question as to what is the proper measure of recovery in an action at law for infringement and in reviewing the law of the subject says:

"The action being at law, it must be borne in mind that the measure of recovery is not the same as in equity. In the latter forum, by the express provisions of the statute, (section 4921) profits made by an infringer by the use of an invention may be recovered, and, in addition thereto, compensation may be obtained for any direct injury done to the patentee that is not fully recompensed by the recovery of the profits realized by the infringer. But at law the measure of recovery is the actual loss or damage that the plaintiff has sustained as the approximate result of the infringement. In an action at law the question is not what the patentee may have speculatively lost, but what he actually did lose as shown by the evidence. *Seymour* v. *McCormick*, 16 How. 480; *Philp* v. *Nock*, 17 Wall. 460; *Birdsall* v. *Coolidge*, 93 U. S. 64; *Cowin* v. *Rumsey*, 4 Fish. Pat. Cas. 275; Rob. Pat. sec. 1053. In this respect no change was made by the act of July 8, 1870. It is still true that only actual damages are recoverable in a suit at law (*Birdsall* v. *Coolidge*, *supra*); and whether the suit be at law or in equity, the burden is on the plaintiff to show the damages actually sustained. The proof in that respect, as has been said, "must be clear and definite." It must present sufficient *data* to enable a court or jury to estimate with certainty what the plaintiff has lost by the infringement, and what compensation he is entitled to. *New York* v. *Ransom*, 23 How. 487; *Philp* v. *Nock*, *supra*; *Rude* v. *Westcott*, 130 U. S. 152, 9 Sup. Ct. Rep. 463; Rob. Pat. sec. 1053, and citations.

"In an action at law for infringement, it is true that evidence may be given of profits made by the defendant by the use of the patented device (*Philp* v. *Nock*, *supra*); but such proof is merely a means to an end. Profits *oe nomine* are not recoverable in such action, and such proof is of no avail in estimating the damages, unless further evidence is produced from which the court or jury can legitimately infer that but for the infringement the profits realized by the infringer, or some definite portion thereof, would have been realized by the patentee. In some instances the inference is readily drawn, especially in those cases where both parties are shown to have had equal facilities for manufacture, and the patented device is in itself a complete machine or com-

> pound, in all respects new, and the inventor has elected to realize on his invention by manufacturing and selling the patented machine or article; but in most other cases proof that a defendant has made large profits furnishes in itself no basis for a correct estimate of the injury sustained by the patentee. It does not follow that what the infringer has made, the patentee, as a proximate result of the infringement, has lost; and there is no presumption, either of law or fact, that the actual damage done to the patentee is commensurate with the gains of the infringer. *Seymour* v. *McCormick*, *supra*; *Dobson* v. *Carpet Co.*, 114 U. S. 439, 5 Sup. Ct. Rep. 945; *Dobson* v. *Dornan*, 118 U. S. 10, 6 Sup. Ct. Rep. 946; *Buerk* v. *Imhaeuser*, 2 Ban. & A. 452; *Bell* v. *Stamping Co.*, 32 Fed. Rep. 549; *Roemer* v. *Simon*, 31 Fed. Rep. 41; Rob. Pat. sec. 1062."

In the trial of this Shultz case the plaintiffs pursued precisely the same course as in the present case. That is to say, without attempting to prove any actual damage, Royer testified as to what in his opinion was the value of the advantage attending the use of the patented machine. In that case the plaintiffs were not quite so modest in their demands as in the present case, for it appears from the opinion of the court that, Royer having testified that such advantage "amounted to as much as four, and certainly to as much as two dollars per hide on each hide treated by the defendant," the plaintiffs asked the court to allow the sum of *two dollars* per hide as the measure of damages, and to assess the plaintiffs' damages at the sum of $297,760.

In dealing with this preposterous claim, Judge Thayer says, p. 54:

> "This estimate of the plaintiff appears to be based on the saving of expense for labor incident to the use of the invention. On this testimony the court is asked to allow two dollars per hide for each hide treated and sold by the defendant, and to assess plaintiff's damages at the sum of $297,760. This the court must decline to do. The saving in the cost of labor of from two to four dollars per hide, testified to by the plaintiff (assuming his estimate to be correct), is precisely the advantage or profit due to the operation of the patented device that the plaintiff might claim if the suit was

in equity. But it does not follow, nor is it a reasonable inference under the evidence in this case, that plaintiff was damaged to the extent of two dollars per hide on each hide treated by the defendant; and it is only actual, as distinguished from speculative damages, that are recoverable in this action. Such an inference might be justified if it appeared that during the period of infringement plaintiff possessed adequate means and facilities for supplying all the demands of his own and the defendant's customers, and if it appeared that the belting and lace leather, manufactured by both parties was produced by substantially the same process, and was of substantially the same quality, and if it had been shown by the testimony of any considerable number of defendant's customers that but for the presence in the market of defendant's product they would have bought from the plaintiff. But there is no testimony of this character in the case. On the contrary, and as before stated, defendant, by a process of its own, manufactured partially tanned lace and belting leather of superior quality and finish, which no doubt had great advantages in the market over merely fulled rawhide, such as the plaintiff at all times produced. I am satisfied that by reason of its superior quality and finish there was a greater demand for defendant's product than plaintiff would have succeeded in establishing for fulled rawhide had he met with no competition; and I have no doubt that defendant made sales to a large amount that would not have been made by plaintiff under any circumstances, and that it has numerous customers who would not have become plaintiff's customers in any event. In viewof these facts, the inference that plaintiff's actual loss by reason of the infringement is commensurate with defendant's gains is entirely inadmissible. There is no legal presumption to that effect, and the evidence negatives such an inference.

Nor is there any evidence that would warrant me in finding approximately what part, if any, of defendant's gains, due to the use of the infringing device, would have been realized by the plaintiff but for the infringement. Any effort in that direction would necessarily fail for want of sufficient *data* to base a finding on which I could rest with any confidence in its accuracy."

While the proof in the present case does not show that difference between the plaintiffs' and defendants' leather which appears to have existed in the Shultz case, in which the defendant's leather appears to have been only partially

rawhide instead of entirely rawhide, it is proved in the present case, and is not denied, that the defendants' rawhide leather is superior and sells at higher prices than that of the plaintiffs or of any other manufacturer. Coupe's Dep., Int. 4, p. 79; X Int. 514, p. 137.

But even if this were not so, it would in no way affect the reasoning of Judge Thayer, and all that he says as to want of proof on the part of the plaintiffs in support of their claim applies with equal force to the present case.

We submit that the finding of Judge Thayer as to the law in relation to the measure of recovery in an action at law, and his decision that such a course as was pursued by the plaintiffs in the Shultz case, and in the present case, is wholly inadequate and insufficient, and entitles such plaintiffs to only nominal damages, was sound and correct, and in accordance with the principles laid down by this court in the cases above referred to.

If it be suggested that the plaintiffs are entitled to recover the market value of the use of the invention, and that the advantage realized by the defendants might be taken as the market value of such use, the answer is, first, that no such suggestion was made at the trial, no such instruction was requested or given, and no exception taken by the plaintiffs; and, second, that, as decided by Judge Thayer, there is no foundation in law for such a claim.

Such a suggestion was made to Judge Thayer in the St. Louis case, and he disposed of it in the following language, p. 55:

> "It was suggested during the trial that the plaintiff was entitled to recover the market value of the use of the invention, and that the advantage that defendant was shown to have realized might be taken as establishing the market value of such use. With reference to this suggestion, it is sufficient to say that I know of no instance in which, in a suit at law, a patentee may recover as damages the market value of the use of his invention, except in those cases where, by the

> mode of enjoyment of the monopoly, the patentee has himself established such market value, by granting the use of the invention to the public for prescribed royalties or license fees. *Rude* v. *Westcott*, *supra*. This is not such a case, and besides I should not feel disposed, in a case of this character, to determine the general market value of the use of an invention solely upon an opinion expressed by the patentee as to the saving of expense effected by the use of the same."

There is one further matter in the instructions of the court upon this question of damages to which we desire to call attention. The court was requested to charge the jury, according to well established principles, that as it appeared upon the face of the plaintiff's patent that the invention specified therein related only to an improvement in machines for treating hides, the evidence upon the question of damages must show the value of the improvement which forms the subject of the patent, and that if the evidence presented did not prove the value of such improvement, as distinguished from the value of the entire machine or of prior machines known to the art and free to be used by the public, then the verdict should be for nominal damages only.

This instruction the court declined to give, but instead instructed the jury as above quoted. We submit that the court erred in so refusing.

Again Mr. Coupe had testified that of the two machines the old fulling machine and a machine like that of the Royer patent, he would prefer the fulling machine for softening hides in the manufacture of rawhide leather; that the fulling machine would do more work and make a better quality of leather, and consequently could be worked with more profit and advantage, and that he would not take the machine of the Royer patent as a gift and be compelled to work it. Coupe's Dep., Int. 165-170, Rec. p. 99 *et seq.*

In this connection it may be noted that Royer never used a machine like that shown and described in the Royer patent, and never used a similar machine in the way described in the patent. Instead, in the machines which he has employed in practice Royer appears to have had the weight in the machine during the revolution of the shaft, and to have provided the machine with an attachment, not shown, described, or referred to in the patent, consisting of a lever for operating and controlling the weight during the operation of the machine. Royer's Dep., Int. 366-396, p. 57; X Int. 404-408, p. 182.

The same was also true of the Royer machines used at Weatherhead & Thompson's. McMahon's Dep., Int. 90, 91, p. 160; X Int. 151-154, p. 173; Coupe's Dep., X Int. 342, p. 118, X Int. 430, p. 127.

The comparison made by Royer as to the difference of cost between softening hides with the machine of the patent and with other known machines, must necessarily have been made, not with a machine constructed and operated as described in the patent, but with the machines which he used, which were provided with an attachment not found in the patent, and operated in a different manner from that described in the patent.

Notwithstanding that Mr. Coupe had testified, as above stated, to the effect that the patented machine was of no more value, and in fact not so valuable, for practical use as the old fulling machine, the court in the first instance made no reference to the fact in its instructions to the jury. Upon having its attention called to this testimony, the court then instructed the jury as follows, Rec. p. 14:

> "My attention is called to the fact that there is other testimony regarding the amount of damages besides that of Mr. Royer. It is true, no doubt, that the defendant Coupe has testified that there is no advantage in the use of this

patented mechanism; that it is not worth anything to him who uses it. His testimony is that it is not worth anything by way of advantage to him who uses it because it is not worth anything to anybody and cannot be made to make leather, according to his understanding of it, according to his testimony. Of course, if that be true, it not only reduces the damages to nothing, it is not only conclusive that there should not be any damages at all, but that there should be a verdict for the defendant. So that what I said before is strictly true, that assuming that there are to be any damages at all, assuming that the plaintiff is entitled to a verdict, the only testimony upon the subject of the amount of the verdict is that of Herman Royer."

We submit that this instruction of the court put a very unfair and misleading construction upon this testimony of Mr. Coupe, and practically nullified the effect thereof in the minds of the jury. We further submit that it was entirely erroneous for the court to tell the jury, as was done, that "assuming that there are to be any damages at all, assuming that the plaintiff is entitled to a verdict, the only testimony upon the subject of the amount of the verdict is that of Herman Royer."

The Sixth Assignment of Error.

The sixth assignment of error is as follows:

> "6. Because the court erred in its instructions to the jury upon the duty of the plaintiff in a suit for the infringement of letters patent to give notice that *his* invention is patented to lay the foundation for the recovery of damages, as set forth in the sixth exception."

The defendants offered evidence, as heretofore pointed out, tending to show that the defendants had never received any notice, either actual or constructive, of the Royer patent in suit, or of any infringement thereof, and the defendants contended that in the absence of any such notice the plaintiff's were not entitled, under the pro-

visions of Sec. 4900 of the Revised Statutes, to recover any damages.

Instead of instructing the jury to that effect the court did instruct the jury as follows, Rec. p. 15:

> "The provisions of law that no person shall take or use or infringe the rights of a patentee does not depend upon the knowledge on the part of the public of the patent itself—that is to say, an actual knowledge. The patent is public and is accessible to any person who may conceive that his business interests will be subserved by his finding out what his rights are and what they are not, but whether he reads the patent or not he is nevertheless bound by it. He cannot excuse himself by alleging or by proving, even if he can prove it, that he was not aware of the rights of the patentee. A patentee's rights are derived from the grant of the Government and are complete from the time when the patent is sealed and delivered to him, and it is the business of every person in the community to avoid infringements at his own risk. Nor is it necessary, gentlemen, before bringing an action, that the patentee should notify or inform the defendant that he conceives there is an infringement of his patent. If it were necessary, for example, that notice should be given, then the conversation which took place between one of the plaintiffs, Herman Royer, and one of the defendants, Coupe, at the shop of the defendants in Attleboro' in 1880, as that conversation is detailed by Coupe himself, throwing out of the account the statements made by Royer, would have been sufficient to put the defendants on their guard, and to notify them that a claim was or might be made against them. But in this case it is not necessary to show any notice. The plaintiff may produce his patent, which is the evidence of his right, and if he shows that it has, in point of fact, been infringed, then it will be no defense to his action if the defendant proves either that he did not know of the existence of the patent, or that the plaintiff neglected to notify him. He was bound to know, and the plaintiff was not bound to assist his information or knowledge by notifying him."

In giving this instruction the court, presumably, had in mind the general rule that, a patent being a matter of public record, the public are presumed to have knowledge of it, and that ignorance of the existence of a patent is no defence to a suit for infringement. But the court evi-

dently overlooked or disregarded the provisions of Sec. 4900, which relates to the recovery of damages. A plaintiff may obtain a verdict or a decree of infringement against a defendant who had no knowledge of the plaintiff's patent before the suit was brought, but he cannot, under the express provisions of the Statute, recover any damages unless he proves either that he has properly marked the patented structure or device with the word "patented," together with the day and year the patent was granted, or that the defendant was duly notified of the infringement, and continued after such notice to make, use, or vend the article so patented.

It has recently been decided by this court, in the case of *Dunlap* v. *Schofield*, 152 U. S. 244, that under Sec. 4900 the burden is upon the plaintiff to allege and prove that he has complied with the provisions of that section, and that in the absence of such proof on the part of the plaintiff he can recover only nominal damages.

In the present case the plaintiffs have neither alleged nor proved that the machines constructed under the patent have been marked as the statute requires. The only ground, therefore, upon which they can recover damages is by proof of actual notice of infringement given to the defendants and of continued infringement after such notice.

Notwithstanding this the court instructed the jury that no notice was necessary. The court thereby took away from the jury entirely the question whether any actual notice of infringement was ever given, and the consideration of the testimony introduced relating to the subject. This was manifest error. It being necessary for the plaintiffs to prove actual notice to the defendants in order to entitle them to the recovery of damages, it was the duty of the court to leave to the jury the consideration of the

testimony as to whether any such actual notice of infringement was ever given, and to instruct the jury that unless they found that such notice had been given, their verdict must be for nominal damages only.

In conclusion it is submitted that the case was not properly submitted to the jury by the trial judge, and that serious errors were committed to the prejudice of the plaintiffs in error.

EDMUND WETMORE,
WILMARTH H. THURSTON,
For Plaintiffs in Error.

Office Supreme Court, U. S.
FILED
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JAMES H. McKENNEY,

Supreme Court of the United States.

OCTOBER TERM 1894.

No. 54.

WILLIAM COUPE AND EDWIN A. BURGESS, COPARTNERS AS WILLIAM COUPE & COMPANY, PLAINTIFFS IN ERROR,

vs.

HERMAN ROYER AND LOUIS ROYER.

Supplemental Brief for Plaintiffs in Error.

EDMUND WETMORE,
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For Plaintiffs in Error.

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WILLIAM COUPE AND EDWIN A. BURGESS, COPARTNERS AS WILLIAM COUPE & COMPANY, PLAINTIFFS IN ERROR,

vs.

HERMAN ROYER AND LOUIS ROYER.

Supplemental Brief for Plaintiffs in Error.

In the main brief the requests to charge and the instructions alleged to be erroneous were set out in the brief of argument, in connection with the discussion of each error as set forth in the assignment of errors filed under section 997 of the Revised Statutes and contained in the transcript of record, because it was thought that such arrangement would be more convenient for the court in this particular case.

To cure any irregularity or informality in that respect and to comply more strictly with the requirements of Rule 21, a specification of errors is here presented setting out in connection therewith the instructions requested and refused and the instructions given.

The point is made in the brief for defendants in error that the assignment of errors, as filed under section 997 and contained in the transcript of record, relates only to instructions given and not to instructions refused. It is submitted that, as both instructions given and refusals to give instructions requested were excepted to (Rec., p. 15), a fair construction of said assignment of errors is that they relate to both grounds of exception. To remove any question, however, plaintiffs in error, in now presenting the specification of errors above referred to, include therein the refusals of the court below to give the instructions requested, as well as the instructions given, with the understanding that this may be done under the rulings in *School District of Ackley vs. Hall*, 106 U. S., 428, and *Gaubal vs. Pitkin*, 113 U. S., 545.

Specification of Errors.

1. That the court below, having been requested to instruct the jury upon the question of the proper construction of the plaintiffs' patent as follows (Rec., p. 6):

> "That the plaintiffs' patent and the claims thereof on its face should be construed as requiring the presence, in the combinations recited therein, of a vertical shaft and a correspondingly arranged vertical crib, and that, as it appeared from the evidence and was undisputed that the machines complained of as used by the defendants were provided with horizontal shafts and horizontal cribs, the jury should return a verdict for the defendants."

erred in refusing to give such instruction and in instructing the jury as follows (Rec., p. 6):

> "You will come, however, gentlemen, to another and further consideration, which you must determine upon the testimony which is laid before you. In order to explain that, perhaps, I ought to preface by saying what you are to take this patent to mean: what it is,

in brief terms, that it covers. In order that I may bring my observations within the technical requirements, what is the interpretation which you are to put upon this patent? This, gentlemen, is a patent, and the invention of the plaintiffs is an invention which is to be described as follows: It consists of a shaft which contains or has attached to it means by which hides can be fastened to its periphery. Around that shaft and leaving that shaft in the center are arranged a number of bars which shall contain the roll of hides after it has been wrapped around the central shaft. In the third place there is a plunger or false head or contracting device, whatsoever you may call it—a piece of metal or of wood—which, so moves as to reduce the space within which the hides are contained for the purpose of squeezing them sidewise. That is all there is in the machine, and any machine which contains these elements is an infringement of the plaintiffs' device and is a violation of law. I need not say to you that the defendants' machine is such a machine. It contains a central shaft and a device for fastening hides to it. It has other devices also for fastening other hides, but that constitutes no excuse for the use of the one single device for fastening hides. It has the bars surrounding the central shaft and which confine the hides after they are wound about that shaft. Those bars also have conveniences and means for adjusting them inwardly and outwardly. It also has a movable head, which operates to reduce the space in which the hides are, or, in more popular phrase, to squeeze the hides together, and it also has another corresponding head on the other side, two instead of one."

2. That the court, having been requested to instruct the jury as to the effect, upon the question of infringement, of the substitution in the defendants' machine of devices different from the devices specified in the plaintiffs' patent as follows (Rec., p. 7):

"That if they should find as a fact that the substitution by the defendants of a horizontal shaft and a sur-

rounding horizontal crib in place of a vertical shaft and a surrounding vertical crib, and the substitution of two end pressure plates arranged to approach toward or recede from each other by a positive movement under the control of the operator in place of the single pressure weight described and shown in the plaintiffs' patent, produced an effect different in kind from the effect produced when a vertical crib and pressure weight is employed in the operation of fulling hides, then it would be their duty to find a verdict for the defendants."

erred in refusing to give such instruction and in instructing the jury as follows (Rec., p. 7):

"There is one difference as to which there is other testimony and to which I have not made reference. There is a difference in the position of the attitude of the machines. One of them is said to be vertical and one of them is said to be horizontal. One of them, as it might be said, stands upright and the other lies down on its side. Now, from that change which the defendant Coupe made, taking this" (the plaintiffs') "machine (for, as I say, we assume that he knew of the existence of it) and conceiving it to be an advantage to lay it down on its side, to make it horizontal instead of vertical, it followed that there must be a change made in the operation of the head or plunger which pressed the hides, because when it stood upright it would remain in its place by its own weight. If it was laid down on its side the weight would be likely to fall out of its place, and the weight of the plunger itself might be an inconvenience instead of a convenience in the operation. It was, therefore, necessary if this machine was to be changed into a horizontal machine, or if, to speak more accurately, the attitude of the mechanism was to be changed, it was necessary to make a different device for the purpose of compressing the hides. That is done in a very simple and ingenious way here by using a comparatively thin false head or plunger and moving it by a screw which moves it forward and back as may be required. Those two changes, therefore, go together, as it were—one is a consequence of the other

and they form the most obvious difference to the eye between the two machines. Regarding that change this claim is made by the defendant: He claims that the change results in a radically different method of operation of the two machines. To state it in the language used in the patent law, he claims that there is a difference of function, which means simply that there is a difference in the manner and result of the operation of the two machines caused by laying one of them on its side. You are not to assume, gentlemen, that that is not possible. The change is slight in its general aspect. There is no change in the structure of the machine—it is simply a change in the attitude of the machines in relation to the plane of the horizon. Nevertheless, you are to consider that changes smaller than that have sometimes resulted in very large differences in the method of operation. You must, therefore, with unprejudiced minds enter upon the consideration of the question, when you retire to your room, whether there be any difference in the operation of these two machines, the one standing vertical or erect, the other standing horizontal or lying upon its side.

"Now, what is the nature of the difference which the defendant claims? He claims that the difference is this: that the machine in a horizontal position will break the hides so that they can be used for useful purposes in the arts, and that the machine standing in a vertical position will not accomplish this work. To use his phrase, the phrase of the patent law, the machine is not operative; or, to use a phrase equally accurate and perhaps more easily comprehended, that this machine will not do the work which it is appointed to do. If that be so, gentlemen, there is not only a radical difference in operation, but there is evidently a defect in the original patent, so that if that claim made by him is true he has two defenses, either one of which is a sufficient answer to this case—that is to say, while the machine described by the plaintiff as being a vertical machine will include horizontal machines also, and while it is true that a horizontal machine will infringe this patent for a vertical machine if it appears that the operation of the machine is substantially the same in the one position or the other; on the other hand, you

will understand that if it appears that a horizontal machine will work and is operative, and that a vertical machine will not work and is not operative, then you must confine the plaintiff to that interpretation and meaning of his patent which confines him to vertical machines alone.

"It is not necessary for me to elaborate the legal principle contained in this. It would not interest you, and perhaps would tend rather to confuse than to elucidate what I have to say, and I therefore make one statement which, for practical purposes, for your purposes, covers the whole question. If you find that a machine made with this shaft, crib, and weight and standing so that the shaft is vertical—that is to say, is upright, will not break hides, will not do the work which it is expected to do—then in that case the defendant is entitled to your verdict. If you find that it will do that work, then the plaintiff is entitled to your verdict so far as this question is concerned. You are not to consider, gentlemen, which does it the best; you are not to choose between the two machines; you are not to consider whether one machine makes more trouble than the other, whether one makes work more uniform than the other and more desirable in the market, whether one is better able to perform the work, whether one does it with a less amount of power, whether it is easier in one to load or unload than in the other, whether the machine is more under the control of the operator in one case than in the other, or whether the crib in one case is more adjustable that in the other. These considerations are of no consequence. To put it more shortly, the question to be determined by you is not which of these machines is the better machine, but simply and solely, will a machine made with a vertical shaft do the work at all? Now, as to that, you must consider the large amount of testimony that has gone in here."

3. That the court, having been requested to instruct the jury upon the question of what does and what does not constitute a mechanical equivalent in determining the question of infringement, as follows (Rec., p. 9)—

> "That a mechanical equivalent for a device shown in letters patent is a thing which performs the same result in substantially the same way or by substantially the same mode of operation as the device described in the patent, and that if the jury should find from the evidence and testimony in the cause that under this rule the pressure plates controlled as to their movements and as to the degree of pressure to be exerted by them, by right and left hand screws, at the pleasure of the operator, were not the equivalents, in a horizontal hide-fulling machine, of the pressure weight in a vertical machine, then the jury ought to find a verdict that the defendants do not infringe the second claim of the plaintiff's patent"—

erred in refusing to give such instruction and in instructing the jury as above quoted in connection with the first and second specifications of error.

4. The fourth assignment of error is waived.

5. That the court, having been requested to instruct the jury upon the question of damages, as follows (Rec., p. 13)—

> "That as it appeared upon the face of the plaintiff's patent in suit that the invention specified therein related only to an improvement in machines for treating rawhides, the evidence upon the question of damages must show the value of the improvement which forms the subject of the patent; and if the evidence presented does not prove the value of such improvement as distinguished from the value of the entire machine or of prior machines known to the art and free to be used by the public, then the verdict should be for nominal damages only"—

erred in refusing to give such instruction and in instructing the jury as follows (Rec., p. 13):

> "The course taken by the plaintiff to show the amount of damages is a proper course. He undertakes to show the value of this invention to any person using it, and the law deems it a fair inference that whatever value

has been received by the defendants through the use of this invention, so much has been taken away from the plaintiff, and he is entitled to have it restored to him. Upon the amount of those damages you have the testimony, if I remember right, of only one witness. Mr. Royer himself has made an estimation, as he states, of the amount of money which would be saved by the use of this particular mechanism for the performance of this particular operation in the course of the production of rawhide leather. There is no evidence as to the amount of advantage or profit from the employment of other devices for other purposes, either for the preparation of the leather before it goes through this machine or afterwards, but you heard his testimony to the effect that three or four dollars a hide is not an extravagant estimate of the amount of saving which would be made by the use of this mechanism of his, over and above any other device which was at the time of his invention in use and which the public had a right to use. That estimation, if you are satisfied with the fairness of it, may be taken as the basis of your calculations. You ought, however, to observe the statement made by the plaintiff himself that for the purpose of certainty or for other purposes he chooses that you shall take a considerable smaller sum, and which, according to his testimony, is clearly within the value of this invention—that is to say, the sum of one dollar for each hide. You will bear in mind that it is one dollar for a hide which is thus estimated, and not one dollar for a side of leather. If you believe his testimony to be sound and in accordance with the truth, then you may make up your verdict on that basis, that being, I think, the only testimony in the case as to the amount of damages."

"My attention is called to the fact that there is other testimony regarding the amount of damages besides that of Mr. Royer. It is true, no doubt, that the defendant Coupe has testified that there is no advantage in the use of this patented mechanism; that it is not worth anything to him who uses it. His testimony is that it is not worth anything by way of advantage to him who uses it because it is not worth anything to anybody and cannot be made to make leather, according to his understanding of it, according to his testi-

mony. Of course, if that be true, it not only reduces the damages to nothing, it is not only conclusive that there should not be any damages at all, but that there should be a verdict for the defendant. So that what I said before is strictly true, that assuming that there are to be any damages at all, assuming that the plaintiff is entitled to a verdict, the only testimony upon the subject of the amount of the verdict is that of Herman Royer."

6. That the court erred in instructing the jury as to the duty of a plaintiff to give notice that his invention is patented to lay a foundation for the recovery of damages, as follows (Rec., p. 15):

"The provision of law that no person shall take or use or infringe the rights of a patentee does not depend upon the knowledge on the part of the public of the patent itself—that is to say, an actual knowledge. The patent is public and is accessible to any person who may conceive that his business interests will be subserved by his finding out what his rights are and what they are not, but, whether he reads the patent or not, he is nevertheless bound by it. He cannot excuse himself by alleging or by proving, even if he can prove it, that he was not aware of the rights of the patentee. A patentee's rights are derived from the grant of the Government and are complete from the time when the patent is sealed and delivered to him, and it is the business of every person in the community to avoid infringements at his own risk. Nor is it necessary, gentlemen, before bringing an action that the patentee should notify or inform the defendant that he conceives there is an infringement of his patent. If it were necessary, for example, that notice should be given, then the conversation which took place between one of the plaintiffs, Herman Royer, and one of the defendants, Coupe, at the shop of the defendants in Attleboro', in 1880, as that conversation is detailed by Coupe himself, throwing out of the account the statements made by Royer, would have been sufficient to put the defendants on their guard and to notify

them that a claim was or might be made against them. But in this case it is not necessary to show any notice. The plaintiff may produce his patent, which is the evidence of his right, and if he shows that it has, in point of fact, been infringed, then it will be no defense to his action if the defendant proves either that he did not know of the existence of the patent or that the plaintiff neglected to notify him. He was bound to know, and the plaintiff was not bound to assist his information or knowledge by notifying him."

The further technical point raised in the brief for defendants in error, that the portion of the transcript following page 15, and including the report of the evidence, is not certified by the judge, but only by the clerk of the court below, is fully met by the decisions of this Court in the cases of *Worcester* vs. *Georgia*, 6 Pet., 515, and *Garneau* vs. *Dozier*, 100 U. S., 7, in which it was held to be proper and sufficient for the transcript to be certified by the clerk and sealed with the seal of the court, and that certification by the judge was not required.

Edmund Wetmore,
Wilmarth H. Thurston,
For Plaintiffs in Error.

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No. 53.

IN THE

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1894

WILLIAM COUPE and EDWIN A. BURGESS, Copartners as William A. Coupe and Company,

Plaintiffs in Error.

VS.

HERMAN ROYER and LOUIS ROYER,

Defendants in Error.

BRIEF OF DEFENDANTS IN ERROR

M. A. WHEATON AND
F. J. KIERCE,
Counsel for Defendants in Error.

Supreme Court of the United States.

WILLIAM COUPE AND EDWIN A. BURGESS, Copartners as WILLIAM A. COUPE & Co.,
Plaintiffs in Error,

vs.

HERMAN ROYER AND LOUIS ROYER,
Defendants in Error.

BRIEF OF DEFENDANTS IN ERROR.

This is an action brought by the defendants in error against the plaintiffs in error for an infringement of United States Letters Patent, No. 77,920, bearing date May twelfth, 1868, for an improved machine for treating hides. It is the same patent which was before this Court in the case of Royer vs. Schultz Belting Co., reported in 135 U. S. Reports, at page 319.

This action is at law for the recovery of damages only. The case was tried by a jury and a verdict was had for the plaintiffs Royer and a judgment was entered accordingly. The plaintiffs in error have brought the case to this Court by a bill of exceptions and a writ of error.

The bill of exceptions is in the printed manuscript, beginning on page five and ending on page fifteen.

There are six subdivisions of this bill of exceptions, *each and every exception being taken to the decision of the Court concerning the instructions which were given to the jury* or which were asked for by the plaintiffs in error.

The assignment of errors is on pages 210 and 211 of the transcript. There are six subdivisions of this

assignment of errors, and each and every one of them *is based upon the instructions which the Court gave to the jury. None of them charge any error in the refusal of the Court to give any of the instructions asked for.*

Neither the bill of exceptions nor the assignment of errors charge any error in any ruling of the Court made during the taking of the testimony, either in rejecting any testimony offered by plaintiffs in error, or in admitting any testimony to which they objected.

Neither are there any objections taken to any matter concerning the pleadings in the case. No fault is found as to any matter whatever except with regard to the said instructions.

The assignment of errors is as follows, viz:

"1. Because the Court erred in its instructions to "the jury as to the proper construction of the plaintiffs' "patent and the claims thereof and as to the scope of "the plaintiffs' patent as covering the defendants' ma- "chine, as set forth in the first exception.

"2. Because the Court erred in its instructions to "the jury in a matter of law involved in determining the "question of infringement on the subject of the effect of "the substitution of devices in the defendants' machine "different from the devices specified in the plaintiffs' "patent, as set for in the second exception.

"3. Because the Court erred in its instructions to "the jury as to the rule for the determination of what "does constitute a mechanical equivalent in a machine "and as to the application of the doctrine of mechanical "equivalents to the plaintiffs' patent, as set forth in the "third exception.

"4. Because the Court erred in its instructions to "the jury as to the proper course to be observed in con- "structing a working machine from letters patent for "the purpose of determining whether it be or be not an "operative machine in the sense of the patent law, as "set forth in the fourth exception.

"5. Because the Court erred in its instructions to "the jury on the subject of the rule incumbent upon the "plaintiff in the proof of damages in an action for in-

"fringement of letters patent as set forth in the fifth exception.

"6. Because the Court erred in its instructions to the "jury upon the duty of the plaintiff in a suit for the infringement of letters patent to give notice that his "invention is patented to lay the foundation for the recovery of damages, as set forth in the sixth exception."

Under this assignment of errors the only matter to be considered by this Court is the said instructions which were given to the jury. No refusal of the Court to give instructions asked for by the plaintiff in error is mentioned or referred to in any way in this assignment of errors.

The record of this case as presented to this Court is, we think, in a peculiar condition. At folio 22, page 15, there appears a statement to the effect that what follows is a report of the evidence introduced at the trial of the cause in the Circuit Court. From the beginning of page 15 to the end of folio 337, on page 210, appears what purports to be the said testimony. Whether or not it is in fact such testimony does not, as we think, appear from the record. It all comes after the signature of the Judge to the bill of exceptions, which signature is on page 15 of the transcript. The Judge does not certify to any thing that appears in the transcript after his signature on page 15. The signature of the Judge appears only twice in the record after the said page 15. It appears once on page 212, where he approves of the bond taken at the time of allowing the writ of error herein, and again it appears on page 213, where it is subscribed to the citation. The Judge nowhere certifies that what appears in the transcript from page 16 to page 210 is the testimony taken in the case or any part of it. The certificate of John G. Stetson, the clerk of said Circuit Court, is on page 211 of the transcript, and he certifies "that the foregoing is a true copy of the record of said Circuit Court in the cause entitled No. 2542, law docket, Herman Royer et al., plaintiffs, vs. William Coupe et al., defendants, determined in said Circuit Court, and of all

proceedings therein and of the assignment of errors filed therein."

This certificate certifies to the "record" and to "the proceedings" in the cause. But what is contained in the transcript from page 16 to page 210, does not purport to be any part of either the "record" or of the "proceedings." It purports to be the testimony of witnesses taken orally in open Court. Such testimony is no part of the record of a cause. It may be taken down in writing, or transcribed from a stenographer's notes and when thus reduced to writing may be filed, and the writing so filed becomes a part of the record of the cause. But here there is no showing made in the record to the effect that the testimony was reduced to writing at all. Neither is there any showing made in the transcript to the effect that the oral testimony was ever filed, even if it had been reduced to writing. The statement at folio 22 of the record is that "the following is a report of the evidence." But this is neither the statement of the Court, nor does it come within any certificate of the clerk. Who made this "report of the evidence?" Who certifies that this "report" contained the real and true testimony that was taken in the cause? Evidently there is nothing to verify the idea that this was the testimony taken in the case.

The taking of testimony on the trial of a case is of course a "proceeding." But the testimony itself after it is taken is not a "proceeding." The certificate of the clerk to the effect that the foregoing is a true copy of the proceedings cannot be made to cover the oral testimony after it was taken in the cause.

We submit that the matter contained in the transcript from page 16 to page 210, is no part of the record in this cause, but falls within the rule supported by the following authorities.

In Suydam *vs.* Williamson, 20 Howard, 427, there was filed in the Circuit Court what was called a "cause." This purported to contain the testimony taken at the trial, the rulings of the court, etc. It contained some sixty pages and was signed by the judge, and was filed. The Supreme Court, however, held that it was no part

of the record in the Supreme Court. It was not embodied in a bill of exceptions, nor so brought up that the Supreme Court could consider it as a part of the record. This case of Suydam *vs.* Williamson has been repeatedly cited as a correct authority by this Court.

In United States *vs.* Taylor, 147 U. S., on page 700, this Court says: "This Court has also held in Suydam "*vs.* Williamson, 20 How., 427, that the evidence and "the exceptions thereto constitute no part of the "record, unless incorporated in a bill of exceptions signed and sealed by the presiding judge. See also Pomeroy *vs.* Bank of Indiana, 1 Wall., 592."

See also *Burr* vs. *Des Moines Co.*, 1 Wall. 99, page 102.
Pomeroy's Lessee vs. *Bank of Indiana*, 1 Wall. 592, pages 600 to 603.
Rogers vs. *United States*, 141 U. S., page 555.
Lettsatch vs. *Lecum*, 4 Wall. 187, page 189.
Reed vs. *Gardner*, 17 Wall., 409, page 411.
Jones vs. *Buckell*, 104 U. S., 554.

THE TESTIMONY IN THE TRANSCRIPT.

As, however, we may be in error as to what this Court will consider as being in the case, we will refer to the testimony the same as though the case was in equity and all the testimony was properly authenticated and properly before the Court for its consideration on this argument. Such reference to the testimony will at least furnish apt illustrations showing circumstances which, if the evidence is rejected, the Court might suppose to have existed in considering the errors assigned, and thereby come to the conclusion that the instructions are not shown to be erroneous.

The patent sued on is on pages 190 and 191 of the transcript. It shows a machine for treating raw hides. It has a central shaft which revolves alternately, first in one direction and then in the other. A row of pins or rollers are arranged in a circular line around this central

shaft and at some distance from it so as to allow room for the coil of raw hides that is to be treated in the machine. The ends of the pins are set in rings to hold them in their positions. The central shaft has a slot through it. Into this slot are introduced the end or side of the raw hides and they are made fast there by set screws.

These pins set around the central shafts form what is called by the witnesses a crib. A weight is used to press downwards upon the coil of hides in the crib, and *pressure to any desired amount, and by any known means, is put upon the weight to increase its pressure* to the required amount. A horizontal shaft and three bevel gear wheels and belt pulleys are shown in the drawings as means for revolving the shaft and reversing it, as desired. These latter are well known means for such purposes, and constitutes no part of what is covered by the claims of the patent.

The patent has two claims, each one being for a combination. The first claim is for the vertical shaft B, with its slot and set screws, the shaft having a forward and back motion. The second claim is for the pins or rollers which form the crib set in the rings that hold them in place and the weight that rests upon the top of the coil of hides when they are in the machine under treatment.

The revolving shaft with the means for fastening the hides thereto, with the crib formed by the pins or rollers and the weight or false head constitute the new machine and *include all its operative parts.*

There are of course means employed to put this machine in operation, but there is nothing new about them and they are no part of the patent. *Every element in the combinations covered by the two claims of the patent is, however, absolutely necessary to the operation of the machine.* No machine has ever yet been made which would do this kind of work that did not have each and *every one* of these elements either in the exact form shown in the patent, or in substantially the same form.

The defendants have made and used machines to do the same kind of work, and in each and every one of their machines is the central revolving shaft with devices

for fastening the ends or sides of the hides thereto, the crib and two false heads instead of one with means for pressing them towards each other so as to create the necessary pressure on the ends of the coils of hides within the crib the same as is done by the weights and the pressure thereon, as described in the patent sued on. Each one of the cribs in the defendants' machines is the machine of the patent. The defendants have connected several of the machines in single aggregations so as to treat a great many hides at once. The Coupe patents on pages from 196 to 200 of the record, represent the machines made and used by the defendants. This is a conceded fact.

On pages 204, 205 and 206 is a patent which shows the machine made and used by the Schultz Belting Company. This machine also has the crib, the central revolving shaft, means for fastening the ends or sides of the hides thereto and false heads with means for forcing them towards each other so as to create the necessary pressure on the ends of the coil of hides being treated in the machine. This was the machine which was the subject of the suit in Royer vs. Schultz Belting Company decided by this Court and reported in 135 U. S. 319.

The plaintiff called seven different witnesses. They were Herman Royer, Henry S. Burgess, Hadley P. Fairfield, Joseph P. Livermore, George P. McMahon, Henry W. Gallagher and Joseph Meier.

The defendants called three witnesses only. They were William Coupe, Joseph H. Lee and Michael McGowen.

Henry S. Burgess was the bookkeeper and employee of the defendants, and was called as witness by the plaintiff to prove what the defendants had done in the way of infringements. He testified that the raw hide business was new in 1878, and that the defendants had treated in their machines seventy-two thousand two hundred and fifteen *hides*, or what is the same thing, one hundred and forty-four thousand four hundred and thirty *sides*. Each hide made two sides, and the number of sides were entered in the books instead of the number

of hides. Of this number eighteen thousand five hundred and forty-five sides were treated in the machines after the first of August, 1878, and before the end of December of the same year, and one hundred and twenty-five thousand eight hundred and eighty-five sides were treated after the beginning of the year 1880, and March twelfth, 1885, the date at which the patent expired. Record pages from 24 to 27, also 48 and 49, also 131, 132 and 133.

The testimony of Henry W. Gallagher merely shows that he assisted Mr. Burgess in counting from the books the number of sides that the defendants had treated in the infringing machines. Record page 133.

Hadley P. Fairfield was a mechanical expert and testified that the specifications and drawings of the patent sued on, were sufficient to enable a skilled mechanic to make a practical machine from them. He compared the defendants' machines with the plaintiff's patent, and pointed out their similarities, and showed that the combinations claimed in the patent were in each of defendants' machines. Record pages 50 to 66.

Joseph P. Livermore was also an expert, and testified that the description of the patent was sufficient to enable a skilled mechanic to construct a working machine from them. He also compares the defendants' machines with the patent and shows that they contain the combinations which are covered by both of the claims of the patent sued on. Record pages 66 to 74.

Witness George P. McMahon was in the defendants' employ from 1871 to June, 1879. The defendants manufactured the Page patented lace leather, but in 1876 or 1877 they began on raw hide lace leather. When the defendants commenced on the rawhide lace leather they first tried to beat it in a fulling mill and also in a stuffing wheel. The stuffing wheel was a wheel from eight to twelve feet in diameter and three or four feet wide. It was in the form of a drum, and was turned around by machinery. It had teeth or pegs a few inches long, arranged inside a foot or so apart. These pegs were all around on the inside of the drum. The fulling wheel was a failure for treat-

ing the rawhides, and was abandoned for that purpose by the defendants.

This witness also describes the fulling stocks as beaters that were lifted up and down, and had teeth like a pounding machine. Record folio 113.

He also describes the manufacture of the defendants' Page patent leather. Folios 113 to 115. This description shows that no such machine as that covered by plaintiff's patent, was used in its manufacture, which is the only important fact in regard to the description that bears on this case.

Witness further describes the pounding machine which the defendants tried to use in making the rawhide leather, and also the fulling stocks, far enough to show that there was not an element of the plaintiff's patented machine in either of them. Record folios 114 to 117.

These fulling wheels, fulling stocks and pounding machines were complete failures for treating the rawhides, and their use for this purpose was abandoned by the defendants; and they next resorted to the use of the machines which are claimed to be the infringements. They made their first infringing machine with two cribs, and each crib was like the model, Exhibit 3, and they have used those cribs ever since. Record folios 117 and 118.

This witness was in the employ of Wetherhead & Thompson, who had made the fulled rawhide in vertical machines from 1881. Folio 120.

Hermon Royer's direct testimony is in the Record from page 19 to page 24, and from page 28 to page 59, except a part of pages 48 and 49, which are taken up with the testimony of Henry S. Burgess already noted.

Mr. Royer first explains the plaintiff's patent which is put in evidence as Exhibit 1. Folio 23.

A model of the patent is put in as Exhibit 2. Folio 23.

The beveled wheels which drive the machine are not shown in the model. Exhibit 2, folio 26.

Without wading through all the details of the testimony of Mr. Royer, we may state that his description of his machine, as contained in the patent, is just as it is

described by this Court on page 323, 135 U. S., in the following language:

"The plaintiff's machine has a vertical crib of cylin-
"drical bars standing in a circle around and concentric
"with a central shaft. The ends of these bars are fastened
"in appropriate disks or rings, and thus are held in proper
"position. The crib does not revolve, but the central
"shaft does. A vertical slot is made in the latter, in
"which one end of a hide is inserted and there held by
"set-screws. Several hides can be treated in the ma-
"chines at the same time. The ends of the hides being
"fastened, the central shaft is made to revolve, and in
"doing so it draws the hides into the crib through a
"space between two of the bars, and winds them in a
"coil around the shaft. A sufficient number of hides is
"put into the machines at one time to fill entirely the
"diameter of the inside of the crib when they are com-
"pressed. When the hides are all drawn into the crib,
"and the coil is compressed around the central shaft,
"filling the crib tightly, the motion of the central shaft
"is reversed, and the hides are unwound and wound up
"again around the shaft in the opposite direction, the
"hides being all the time under pressure. This opera-
"tion of winding, unwinding and re-winding is con-
"tinued, and the action on each hide is to bend every
"particle of it, whether thick or thin, alike and under
"the same degree of pressure. There is a weight on
"top of the coil of hides, so as to produce end pressure
"on them in the direction of the shaft, lengthwise of
"the crib."

The evidence of Mr. Royer also shows that *no other machine ever existed before which wound hides in one direction and then rewound them in the opposite direction under pressure*. It also shows that this produced a *new mode of operation in the treatment of hides which was not the result of any improvements made on the mechanism of any prior machines.*

The Court will notice that in this patented machine there is no pounding of the hides whatever. No pounding machine ever succeeded. The patented machine simply

doubles the hides back and forth under a pressure *which is alike in every part of the coil of hides.* The hides are put into the machines slightly moistened but sufficiently dry so that the beading operation will so loosen the fibres of the hides as to make them mechanically soft.

After the patented machine was made the best method of treating hides successfully in it, had yet to be learned. The machine was entirely new from its foundation, and while its motions were the same as they are now, the manipulation of the hides treated in the machine to the best advantage had not then been learned. It took great labor, patience and investigation to learn it. As Royer explains in folios 68 and 69 the technical knowledge had yet to be learned. It not only had yet to be learned but it had yet to be discovered. As Mr. Royer explains, the building of a mill is one thing, knowing how to run it is another. A person, however bright intellectually he may be, may go into a flour mill and see all the mechanism for converting wheat into flour complete and ready to run, still if he has never learned the milling business he will not know how to run it. A steam engine may be completed, but only the man who has learned the engineer's trade can run it to good advantage. So although the patented raw hide machine was perfect when patented, still the mechanical skill, or *trade* of operating it to advantage was not yet known, as no one had ever run such a machine so as to produce the article of fulled rawhide. All this is well explained in the history of the inventions which is given in an extract from Mr. Royer's testimony in another case, and which is repeated in the evidence in this case, under Royer's oath, at folio 87.

Royer, after his brother quit the enterprise and after the patented machine was made, continued on to 1871 before he had the new article of fulled rawhide completed. The machine was new and the process by which the article was made was new, and the article itself was new. No more radical inventions and discoveries could be made.

A drawing of the machines that were made by the

Schultz Belting Co. was put in evidence by the defendants for the purpose of showing by that machine and by Judge Treat's decision in the case of Royer vs. The Schultz Belting Co. that the defendants' machine in this case could not be any infringement. It was conceded that the machines of the Schultz Belting Co. were substantially the same as the defendants machines in this case, and, so far as the fact of infringement of the plaintiffs' patent went, were exactly the same. Record, folios 80 and 081; also drawings of the Schultz patent opposite page 250 of the record.

Since this Court *in error* [illegible] *Judge Treat*, that decision reacts in the plaintiffs' favor instead of being an authority against them.

DEFENDANTS' TESTIMONY.

Of the three witnesses called by the defendants, Mr. Coupe was the principal one. His testimony is in the record from folio 101 to folio 121, and again from folio 213 to folio 249, and again from the middle of folio 252 to folio 257.

Mr. Coupe testified that the defendants carry on the tanning business, making many kinds of leather for factory use. That they own forty-nine of the cribs which are claimed to be infringements. That he first practiced tanning [illegible] between the years 1870 and 1878, for which he took out a patent, and he afterwards took out more practical patents on the machines which were put in the cribs. These were patents dated January 28, 1878, also No. 202,111 granted April 16, 1878, also No. 241,563 granted May tenth, 1881.

Record, folio 127, and see the same patents on pages 190 to 213.

He also testified to visits made to him by Louis Royer first, and by Herman Royer afterwards. Pages 82 and 83.

Mr. Coupe had a machine made, as he claimed, after the description in the plaintiffs' patent for the purpose of showing that it would not work. In this machine *the set*

screws were made too long, and as they therefore projected from the shaft the weight would not pass down over them, and the machine was, *as a failure*, entirely successful. All sorts of disasters happened with it, and in Mr. Coupe's hands it could not be made to work according to his testimony. Record, pages 83 to 91.

Mr. Coupe also testifies to the difference between a vertical machine and a horizontal machine, pages 91 to 93. He then gives his construction of the Royer patent and further testifies as to the differences between the vertical machines and the horizontal machines, pages 93 to 98. He next explains that the use of any of the machines is to break the fibres of the hides and soften them, but that a further treatment is necessary in putting in stuffing, page 98. He next describes the fulling stocks, what are called pounders, and the ordinary fulling mills, pages 98 and 99. He then testifies that in his opinion the patented invention was of no pecuniary value whatever, either in savings in money or in any other way, pages 99 to 101.

The cross-examination of Mr. Coupe begins on page 102. It is merely technical and throws but little light on any point that was disputed. He had pronounced the statement made by Mr. McMahon to the effect that the defendants had tried to make raw hide lacing in fulling mills at first and abandoned them for that purpose (see pages 71 and 72) a bare faced lie. See top of page 102. After a lengthy cross-examination on this point it turned out that the defendants only used the fulling mills for the same old uses to which they had always been applied and that *they did abandon them for the making of raw hide lacing just as Mr. McMahon had testified*, pages 112 and 113.

From page 117 forward, Mr. Coupe is questioned to show that from 1880 he knew that Wetherhead & Thompson, at Pawtucket, were using vertical machines with entire success for the manufacture of raw hide lacing, and that none of the difficulties from set screws or otherwise occurred in their vertical machines, which he had testified would occur with any vertical machine. In

the machine which he had made, like the Royers' patent he had found the great difficulty in working it *resulted from the length of the set screws* which projected from the shaft on account of their length. On pages 121 and 122 he *admits that those set screws had been made in that machine longer than was shewn in the plaintiffs' patent.* On page 125 Mr. Coupe testifies to seeing Mr. Royer's filled rawhide at Antoine Heim's place in New York, but does not tell when. On the same page he testifies that the *first machine which he ever saw* for the manufacture of this article was the crude machine that he made and which, at page 81, he says was between 1876 and 1878. This date agrees substantially with that given by McMahon, pages 75 and 76. This was from eight to ten years after the plaintiffs' patent was granted.

On page 127 Mr. Coupe testifies to Wetherhead & Thompson using a lever and tackle to pull down the false head or weight of their Royers' patented machine. This is in accordance with the patent specifications, which say, "An iron weight or press is employed for crowding the coils of hides down," &c. Also,

"An iron weight, I, having an opening through its center for the vertical shaft, and vertical grooves, i i, in it to prevent its turning, is placed upon the inside of the pins or rollers, and, by *pressing upon this weight*, the hide is compressed edgewise," &c., pages 100 and 101. This extra pressure upon the weight or false head is distinctly provided for in the patent.

On pages 129 to 131 Mr. Coupe testifies to the kind and number of machines which the defendants used; also that he knew that the raw hide lacing which he saw at Heims was made by Mr. Royer.

On pages 149 and 150 Mr. Coupe testifies that the Wetherhead & Thompson machines were like the Louis Royer patent, which was put in evidence, and is at pages 207 and 208 of the record. This is a vertical machine with the central revolving shaft and a surrounding crib, &c. It is *like the patent and so far as the patent goes.* As an improvement the crib is made to open in half for taking out the hides, but is closed, and *precisely like the*

patent used on when the hides are being treated in it. This is explained in the subsequent testimony of McMahon, pages 169 to 172.

The next of defendants' three witnesses was John H. Lee, whose testimony is in the record from pages 150 to 158.

This witness is a machinist and made the machine for the defendants, which was claimed to be a Royer machine, and which Mr. Coupe could not make operate, principally because the set-screws were too long. Mr. Lee testifies that he made the machine like the drawings and specifications of the plaintiff's patent. He also identifies a model that was like the machine which he made. On cross examination, however, *he admits that he made the set-screws longer than they were shown in the patent.* Pages 152 and 153.

On pages 158 to 161, Mr. Coupe returns to testify that the profits made on the rawhide was about the same as that made on his Page patent leather, and he gives some further evidence as to the tanning process.

The other witness of defendants was Michael McGowan. Pages 161 and 162. Mr. McGowan merely testifies that he made the two models in evidence (referring to those of defendants), and *that the set-screws in the machine which Mr. Lee made were longer at one end than shown in the patent.* Last half page 161.

In rebuttal plaintiff called Joseph Meier. Pages 162 to 169.

This witness was in the employ of Antoine Heim, in New York, from 1870 to 1876 as bookkeeper and salesman. He first knew of the rawhide leather in 1873. It was at Heim's place and was made by Herman Royer in San Francisco. Heim was then purchasing the Page patent lacing from the defendants. Coupe saw Royer's rawhide lacing there, put a piece in his mouth, chewed it, and said it was not leather and *that it would come back to gelatine again.* He also took a piece and said he would like to make a chemical test of it. Witness testified that it must have been in 1873 or 1874 that Mr. Coupe saw Royer rawhide lacing at Heim's. From

March, 1873 to August fifth, 1875, Heim sold three thousand and fifty-five dollars and fifteen cents worth of the said Royer's rawhide goods. Royer's goods *were a novelty at the time and Mr. Coupe examined them within a year from the time Heim commenced keeping them.*

"A class of goods too hard for this market had been brought from Germany and tried here but would not sell. Page 164. The demand for Royer's goods increased right along. Page 165.

Heim thought Royer was making too much money and tried himself to make the rawhide boring. He used fulling or stuffing wheels and entirely failed to make the article. He afterwards bought of others, because Royer would not sell him any more on his (Heim's) terms. Pages 167 and 168.

George P. McMahon was then recalled and testified to the *successful use of the vertical machines used by Weatherhead & Thompson continually from the year 1881*, and that the difficulties which Mr. Coupe had testified to in trying to operate vertical machines *had no existence in practice.* Pages 169 and 170.

Herman Royer was recalled and contradicted the testimony of Mr. Coupe as to his statement of the difficulties which he thought would occur in operating the vertical machines. Mr. Royer states that he worked the vertical machine during the whole life of the patent, and the amount of work which they did. That Mr. Coupe's machines would run in a vertical position without the necessity of changing a single screw in them, and the patented machine would run in a horizontal position just as well as in a vertical position. Also that the Weatherhead & Thompson machines run with the crib closed and did not operate the least bit differently from the patented machine. He then explained how he took the hides out of his machines. Weatherhead & Thompson's way was easier but not any quicker. There was no practical difference between them.

He also stated the benefits of tar used in the stuffing of the hides, and told of his visit to the defendants' factory in 1881.

This closed the testimony except as to the exhibits which were put in and most of which were explained in the oral testimony.

MATERIAL FACTS SHOWN IN THE TESTIMONY.

The material facts that are shown in the testimony are not contradicted but *are proved by the testimony of both sides.* The first is that the patented machine was the first machine for treating raw hides in which there was a central shaft revolving first in one direction and then in the other so as to wind the hides in a coil around the shaft in one direction and then reverse and rewind them in an opposite direction, the hides being all the while under pressure.

2. That this was a new mode of treating raw hides mechanically. It had never been done before.

3. The treatment softened *all parts of the hides alike*, the thick as well as the thin parts, and it also softened the different hides alike whether they were large or small, thick or thin.

4. There was *no pounding* of the hides in the machine, but the treatment was that of a progressive doubling of the hide from one edge to the other under such a pressure that every part of every hide was subjected to exactly the same bending operation, and consequent loosening of its fibers.

The value of the use of [redacted] patented invention was more than one dollar per hide for each hide treated in the machine.

On pages 29 and 30 of the record Mr. Royer testified that the cost of softening raw hides in a machine which contained the combinations covered by the claims of the plaintiff's patent (that was, a machine with the central shaft, with means for fastening the hides to the central shaft, a weight on which pressure could be applied on the coil of hides and a crib formed by a row of pins in a circle around the shaft) was four or five dollars less per hide than would be the cost of softening raw hides by hand *or by any other known devices than those described in the patent.* That he knows it was more than one

dollar per hide. *That there was never any machine made prior to that of the plaintiff's in which the hides were wound and rewound upon a central shaft within a crib or cage.*

This testimony of Mr. Royer's was nowhere contradicted, except as Mr. Coupe testified, that he did not think the Royer machine was of any value whatever. Record pages 99 to 101.

Each and every one of the defendants' machines (each crib was a machine) had the central shaft revolving first in one direction and then in the other with means for fastening the hides to the central shaft, a surrounding crib, and false heads and screws for putting the end pressure upon the coil of hides within the crib.

The operation of the two machines upon the hides was exactly the same, both machines softening the hides by winding them around the central shaft, then reversing the shaft and re-winding the coil of hides around the central shaft in the opposite direction, the coil of hides being confined within the crib and under such pressure that every part of every hide, thick and thin alike, and every hide whether large or small went through the same bending operation which loosened its fibers and thereby created the necessary mechanical softening of the hides.

The testimony, which is practically undisputed upon the issues of novelty and infringement, brings the case fully within the decision of this Court in Royer vs. Schultz Belting Co., 135 U. S., 319, and within the decisions of

Morley Machine Co. vs. *Lancaster*, 129 U. S., 263.

THE BILL OF EXCEPTIONS.

Turning now to the bill of exceptions and we find that the first three exceptions, or divisions of the bill of exceptions, run into each other and amount to little if anything more than a single exception. The substance of

these three exceptions are to the effect that the Circuit Court should have instructed the jury that if the plaintiffs' patent described a machine placed in a vertical position as the defendants' machines were placed in a horizontal position, the jury should find a verdict for the defendants. The bill of exceptions was filed May 18, 1887. In May, 1890, the said case of Royer vs. Schultz Belting Co., reported in 135 U. S., 319, was decided by this Court. That was a suit brought on the same patent as was the present suit, as will be seen by comparing the patent mentioned in our present declaration—transcript, first part of page 3,—with the description of the patent in the said decision, 135 U. S., last part of page 319. In that case the defendants' machine was horizontal and the end pressure on the coil of hides was produced by two sliding disks, one at each end of the horizontal coil of hides, which disks had a central hole in them for the central revolving shaft to pass through. There was an arrangement of screwbolts, nuts and hand wheels, so that the two disks could be drawn together to make end pressure upon the coil of hides, and retract therefrom; and there was springs to make the pressure yielding. See description 135 U. S., pages 324 and 325.

In that case the Circuit Court had sustained a demurrer to the plaintiff's evidence and entered judgment for the defendants. The case was brought to this Court by writ of error. This Court reversed the judgment of the Circuit Court, saying—135 U. S., page 325.

"We think the Circuit Court erred in not submitting "to the jury the question of infringement, under proper "instructions. If the patented invention was, within the "ruling in Morley Machine Co. *vs.* Lancaster, *supra*, "'one of primary character' and the patent was 'a "pioneer patent,' which were questions of fact to be "passed upon by a jury, then the question, on a proper "construction of the patent, whether the defendant's "machine infringed its claims, was a question of fact "for the jury to determine, on all the evidence which the "case might present. Tucker *vs.* Spaulding, 13 Wall., "453.

" It was not a matter of mere judicial knowledge that " the mechanical differences between the two machines " were material, in view of the character of the patented " invention, and of the claims of the patent; and we are " unable to concur with the view of the Circuit Court, in " its opinion denying the motion for a new trial, that " this is a case where, if the jury had found a verdict for " the plaintiff, on the evidence put in by him on the " question of infringement, all of which evidence the " bill of exceptions states is set forth therein, it would " have been proper for the Court to set aside such " verdict."

The judgment of the Circuit Court was reversed.

By comparing the said decision of this Supreme Court with the instructions given to the jury on the trial of the present case it will be seen that his Honor Judge Carpenter, before whom the trial was had, took precisely the same view of the law which this Court took of it, and that his instructions were the same as they would have been had this subsequent decision of this Court been already before him. He did leave the question of infringement for the jury to decide, and he gave the jury proper instructions under which to reach a proper verdict upon all the testimony which the case presented.

The facts as gathered either from the testimony or from the bill of exceptions were substantially the same as were the facts in Royer vs. Schultz Belting Co. We will here refer to those facts.

In the first exception, transcript page 5, it states that the plaintiff "having introduced in evidence the letters " patent granted to Herman Royer and Louis Royer for " an IMPROVED MACHINE for treating hides, No. " 77020, dated May 12, 1868," and also

" Testimony tending to show that prior to the joint invention of Herman Royer and Louis Royer the said Louis Royer had individually constructed a machine for softening hides," etc. The description of this machine of Louis Royer is given. It had a central horizontal revolving shaft. Around this shaft there were bars that hung in chains which surrounded them all. The upper bars

rested on the hides that were wound around the central shaft while the lower bars hung in the inside circle of the chains. The bars *did not form a circular crib* with the central revolving shaft in its center. *There was no end pressure upon the coil of hides* and the machine was unsuccessful.

Further testimony was put in showing that until the joint invention of the patentees "*no machine for softening* " *hides was known in which there was employed a revolving* " *shaft* for alternately winding and unwinding the hides, a " surrounding crib, and end pressure applied to the hides " while in the crib," Transcript folio 9.

"The invention of the patent consists of a shaft which " contains or has attached to it means by which hides " can be fastened to its periphery. Around the shaft " and leaving that shaft in the centre are arranged " a number of bars which shall contain the roll of " hides after it has been wrapped around the central " shaft. In the third place there is a plunger or " false head or contracting device, whatsoever you may " call it—a piece of metal or of wood—which so moves " as to reduce the space within which the hides are con- " tained for the purpose of squeezing them sidewise." See folio ten.

" It appears from the evidence, *and was undisputed*, " that the machines complained of as used by the de- " fendants were provided with horizontal shafts and hori- " zontal cribs." See latter part of folio 9.

The defendants' machine "contains a central shaft and " a device for fastening the hides to it. It has other de- " vices also for fastening other hides." "It has the bars " surrounding the central shaft and which confine the " hides after they are wound around that shaft." Likewise "It also has a movable head, which operates to " reduce the space in which the hides are, or, in more " popular phrase, to squeeze the hides together, and it " also has another corresponding head on the other side, " two instead of one." See last half of folio ten.

Testimony was introduced tending to show "that the " machines for treating raw hides used by the defendants

" contained in their structure the same elements as
" those described in the patent in suit or equivalents
" therefor, notwithstanding that the defendants' machines
" were arranged with horizontal shafts and horizontal
" cribs, and were provided with two pressure plates or
" false heads arranged to approach toward or recede
" from each other by means of right and left hand
" screws under the control of the operator, and that
" such machines of the defendants' operated in the same
" manner as the machine described in the said letters
" patent." See folio 11.

The patented machine was in a vertical position and had a weight which would press down upon the coil of hides to reduce the space which they would occupy in the machine. The defendants turned their machines to a horizontal position and as equivalent devices for obtaining the same pressure upon the coil of hides which the plaintiffs' weight produces they used a thin false head or plunger moved it forward and back with a screw as required. See folio 12 on pages 7 and 8.

As stated by the Court in the first exception the only anticipating matter was the cloth machine of Louis Royer and machines similar to machines which had been used for fulling cloth. What those machines were the exception does not show. Certainly they were not put in evidence as machines that anticipated the patent sued on. *No matters of anticipation were set up in any way and none were proved or attempted to be proved.* The fulling machines for fulling cloth were of no effect whatever in either law or in fact as they had none of the characteristics of the patented machine.

Neither did the Louis Royer individual machine have any effect in law or in fact that could be used either to furnish a construction of the patent or to anticipate it. *It was not a machine that the patent covered.* It was not a practical machine. If made by a third party after the patent had been granted it would not have been any infringement of the patent nor would it have done the patentees any damage since it would not have been capable of doing any work.

In addition to these facts the Louis Royer machine described in said first exception was *made by one of the patentees*, and if there were any ideas in it that were afterwards incorporated into the patented machine they would only be so much towards the patented invention. Those ideas belonged to one of the patentees from the beginning and if the two Royers afterwards took those ideas and by incorporating with them other and further ideas which resulted in the completed invention such original ideas constituted a part of the joint invention. Suppose Herman Royer had seen this Louis Royer machine and got out of it all the ideas that were in it. Suppose he then went on and made modifications of each and every one of those ideas by mingling ideas of his own with them and thereby worked the two sets of ideas up into a practical invention and produced the patented machine. The two sets of ideas were so mingled and interused one with the other that when the machine was completed it did not contain a feature in it that did not contain the co-mingled and joined ideas of both the Royers fused into each other. The revolving shaft was in the Louis Royer machine but that revolving shaft as an individual mechanical element in the machine is not covered by the patent. It well may be that the ideas and means which Louis Royer had developed in that first machine were carried forward to the new machine and were so incorporated with and intermingled with the later and further ideas and means which both the Royers employed in finishing the machine that the machine as a whole and every subcombination of mechanical elements in it, and even every material feature in it was the product of the two minds of the two men joined, comingled, interlaced and interfused one into the other.

Robinson on Patents in section 401 says:

"Two or more inventors, each of whom has produced an elemental means, may unite in the creation of the co-operative law under which they become a combination. Several inventors of the parts of a machine or manufacture, or of the steps of a process, may thus be the *sole inventors as to each portion* of the concrete invention,

and *joint inventors in regard to it when considered as a whole.*"

In section 398 of the the same work Mr. Robinson says:

"Or where one of the inventors has already in his mind a general indefinite idea of means, still incomplete and needing further exercise of inventive skill to fit it for a practical embodiment, and then the other, perceiving its deficiencies and the method of correcting them, makes his suggestions which the first accepts, — from thence the two advance together to the complete development of the idea; this also is a joint invention. In short, wherever, before the entire conception of the invention by one inventor, another meets him and by his consent unites with him in exercising inventive skill upon the development and perfecting of the conception, the product of their joint endeavor is a joint invention."

Still it is immaterial whether the ideas contained in that Louis Royer machine were incorporated into the new patented machine or not. That Louis Royer machine would not have been covered by the patent or any claim in it, and of course it would not have been any anticipation of the patent if it had been made by some party other than one of the patentees. It was a total failure, and was never patented. Yet what ideas there were in it were the ideas of one of the patentees, and if incorporated in the patent would only carry so much of the new idea back to an earlier date in favor of the patentee.

The other evidence which is shown in said first exception was that fulling machines similar to those used for fulling cloth had for many years before the invention set forth in the plaintiffs' patent been known and used for softening hides. It was not shown that such cloth fulling machines possessed any of the features of the patented machines or that they could be made to do the same kind of work. For instance, it may have been that the patented machine was designed for softening hides while they are in a dry or nearly dry condition, and that the softening occurs by mechanically breaking or loosening

the fibres of the hide, and that such softening cannot be accomplished if the hide is saturated either with water or oil or any liquid. It may have been that the machines which were similar to the cloth fulling machines were used for softening hides by *saturation only*, and that such machines were utterly incapable of operating upon hides which were dry or nearly dry so as to soften them by mechanically loosening their fibrous texture instead of by saturation. It does not appear that there was anything in those machines that anticipated or limited the invention covered by the patent sued on.

Upon these two pieces of testimony, showing the Louis Royer machine and the machines that were similar to machines for fulling cloth, the defendants asked the Circuit Court to instruct the jury that the plaintiffs' patent on its face, and the claims thereof, should be construed as requiring the presence in the combinations recited therein, of a *vertical* shaft and a correspondingly arranged *vertical* crib, and that as the defendants' machines were arranged with horizontal shafts and horizontal cribs the jury should return a verdict for the defendants.

The Court refused to give this instruction and instead thereof instructed the jury that the patent covered an invention which consisted of a shaft, which contained or had attached to it means by which hides could be fastened to its periphery. That around that shaft and leaving that shaft in the center were arranged a number of bars which should contain the roll of hides after it has been wrapped around the central shaft. In the third place there is a plunger or false head or contracting device, whatsoever you may call it—a piece of metal or of wood —which so moves as to reduce the space within which the hides are contained for the purpose of squeezing them sidewise. That is all there is in the machine, and any machine which contains these elements is an infringement of the plaintiffs' device and is a violation of law. The Court further stated to the jury what the defendants' machine contained, as it was shown in the

evidence and about which there was no dispute. See last part of folio 9, and the instructions in folio 10.

The pith of this exception is that the Court instructed the jury that if the defendant's machine contained in it the mechanism that the patent covered it would be an infringement of the patent whether it was in horizontal position or in a vertical position.

That this instruction was correct is made certain by the said decision in Royer *vs.* Schultz Belting Co., 135 U. S., 319. That case is conclusive upon this point

Even if that decision had not been rendered it is obvious that when the patent covers a machine, that it will cover the machine as well when it is lying on its side as when it is standing in a vertical position. While we we were making the argument in this Court in the Schultz Belting Co. case and were urging the proposition that a machine was the same thing whether it was in a horizontal position as when it was in a vertical position so long as it was capable of doing the same work in either position, Mr. Justice Bradley remarks from the bench that that had been decided nearly a hundred years ago. We understood his Honor to be referring to the English case on the Watt steam condenser for engines. In section 308 of Curtis on patents is mentioned the expedient used by "a man in Cornwall, who endeavored to pirate the steam engine. He produced an engine which on the first view of it, had not the least resemblance to Boulton & Watt's engine; where you looked for the head you found the feet, and where you looked for the feet you found the head; but it turned out that he had taken the principle of Boulton & Watt's; it acted as well one way as the other; but if you set it upright, it was exactly Boulton & Watt's engine."

An easy solution, or rather *dis*solution, of the defendants' theory is to remember that a common watch is exactly the same machine when it lies horizontally upon its back that it is when it is hung up by its stem and is in a vertical position. In the latter case it is a vertical watch and cannot be described as a horizontal watch, while in the former case it is a horizontal watch and cannot be

described as a vertical watch, yet the vertical watch and the horizontal watch are exactly one and the same machine. Describing the mere position of the mechanism is not a description of the mechanism itself, and when the revolving shaft and its surrounding crib with the operations which they performed were described, the mechanisms and operations of the patent were described no matter whether they were shown in one position or in another.

If by changing the position from a vertical to a horizontal one the defendants had been able to have left out any one of the mechanical elements of the combinations, without supplying any mechanical equivalent of such omitted element, then a different case would have been presented. But this could not be done, and was not done. Not a single mechanical element was omitted by the change of position, nor was the operation of a single one of the mechanical elements changed.

It would therefore have been error had the Circuit Court given the first instruction as asked for, and shown in the first exception.

The second exception recites that the plaintiffs having offered evidence to show that the two machines operated alike, and that the defendants' machine had the same combinations of elements as did the plaintiffs, notwithstanding that the latter were vertical and the former were horizontal, and the defendants had two pressure disks that approached and receded from each other, and the defendants having offered testimony tending to show that their machine operated differently from the patented machine in that the patented machine roped or twisted the hides and did not uniformly soften the same, and that the pressure of the weight tended to tear the hides from their fastenings to the shaft, the defendants requested the Court to instruct the jury that if they should find as a fact that the substitution by the defendants of the horizontal shaft and a surrounding horizontal crib in place of a vertical shaft and crib, and the substitution of the two end pressure disks arranged to approach toward tiior reede from ea other by a positive movement under

the control of the operator in place of the single pressure weight described and shown in the plaintiffs' patent, produced an effect different in kind from the effect produced when a vertical crib and pressure weight is employed in the operation of filling hides, then it would be their duty to find a verdict for the defendant.

The Court refused to give the instruction in the language in which it was asked, but gave it in substance in the Court's own language.

The instruction as asked for was faulty, in that it carried the idea that even though the defendants' machine contained the patented invention and produced exactly the same operation that the patented machine produced, yet, if it contained something more and thereby produced any new kind of effect that was not produced by the patented machine, that then the defendants were entitled to a verdict. According to the instructions asked if the defendants made changes which produced an *additional* effect, no matter how slight or how unimportant, that the patented machine did not produce, that then they would have the right to appropriate the plaintiffs' entire patented invention. Under this instruction as asked the inventor of an improvement which produced an *additional new* effect would have the right to take the original invention of the first patentees without being liable to any action for an infringement. This has never been the law.

The assignment of errors, however, does not cover *the refusal of the Court to give the instructions asked for* but they are limited to the assertion of errors in the instructions which were given. The second assignment of error is as follows:

"2. Because the Court erred *in its instructions to the jury* in a matter of law involved in determining the question of infringement on the subject of the effect of the substitution of devices in the defendants' machine different from the devices specified in the plaintiffs' patent, as set forth in the second exception."

The instruction covered by this exception begins in the last half of page 7 of the transcript. The Court in-

structs the jury that there is a difference in the attitude of the machines, one is vertical and the other lies on its side. That on account of this change there had to be a substitution for the weight to press the hides, and that the defendants made the substitution of the false head or plunger and moving it by a screw. That the defendants claimed that the change results in a radically different method of operation of the two machines. *That the jury must not assume that such was not possible.* That the change was slight in its general aspects *but they were to consider that changes smaller than that have sometimes resulted in very large differences in the method of operation.* That the jury should therefore enter with unprejudiced minds upon the consideration of the question *whether there was any difference in the operation of these two machines*, the one standing vertical and the other horizontal. The Court then stated to the jury what the defendants claimed in this respect. That they claimed that a horizontal machine would break the hide (this only means that it would loosen its fibres and was a common expression used throughout the trial expressing this meaning) so that they could be used for useful purposes in the arts, and that the vertical machine would not accomplish such work. The Court then instructed the jury that *if this claim of the defendants was true* that there was not only a radical difference in the operation of the machines *but that the plaintiffs' patent was void* and defendants had two defences either one of which was a sufficient answer to the case. That if it was true that the horizontal machine would do the work and that the vertical machine would not, that then the plaintiffs must be confined to the vertical machine and the defendants would be entitled to a verdict.

The Supreme Court of course will understand that the defendants did not claim any anticipation of the plaintiffs' patent nor did they claim that the defendants' machine did not contain all the parts and combinations of the patent. On the contrary they admitted that it did and brought a model of their machine into Court. The defendants tried their case upon their evidence which

tended to prove that a machine made like the patent would not do the work of softening hides and that therefore the patent was void or at least must be so limited that it would not cover a horizontal machine which would do the work. The instructions of the Court were proper and left the jury to decide this question of fact fairly.

We think that the decision of this court in the Schultz Belting Co. case answers this exception of the defendants and that this question of fact should have been left for the jury to decide. We think also that the instructions to the jury to the effect that if the fact was as the defendants' testimony tended to prove then the patenat was void and the plaintiffs were confined to a vertical machine, were as strong in the defendants' favor as they were entitled to have them, in fact were as strong as language could make them.

The third exception, if it can be styled an exception, is peculiar. The subdivision 3 recites that the plaintiffs introduced evidence in relation to the operation of the machine described in their patent, also that defendants' machine employed the same combination of devices and were an infringement, and defendants' offered testimony showing that their machine made use of horizontally arranged shafts and cribs and two false heads arranged to approach towards or recede from each other, controlled by right and left hand screws, and adapted to exert pressure upon the hides in the crib at the will of the operator, and that the effect of such devices in combination was to produce a different result in the softening of raw hides from that obtained from a machine containing the elements described and combined as set forth in the said letters patent the Court refused to give the instruction "*specifically as prayed for*" that a mechanical equivalent for a device shown in letters patent is a thing that performs the same result in substantially the same way or by substantially the same mode of operation as the device described in the patent, and that if the jury should find from the evidence and testimony in the cause that under this rule the pressure plates controlled as to their movements and as to the degree of pressure

to be exerted by them, by right and left hand screws, at the pleasure of the operator, were not the equivalents in a horizontal hide fulling machine of the pressure weight in a vertical machine, then the jury ought to find a verdict that the defendants do not infringe the second claim of the patent. That the instructions given on the matter are comprehended within the portions of the charge of the Court contained in the first two exceptions.

The assignment of error that applies to this third exception is as follows:

"3. Because the Court erred in its instruction to the jury as to the rule for the determination of what does constitute a mechanical equivalent in a machine and as to the application of the doctrine of mechanical equivalents to the plaintiffs' patent, as set forth in the third exception."

As the third exception does not set forth what instruction the Court did give to the jury as to the rule of what constitutes a mechanical equivalent in a machine or as to the application of the doctrine of mechanical equivalents to the plaintiffs' patent, further than to state that "the instructions given on the matter are comprehended within those portions of the charge of the Court hereinbefore specifically set forth," it leaves the exception and the corresponding assignment of error very ambiguous. They leave this Court, as well as the plaintiffs, to hunt through the instructions stated in the first two exceptions, to find out, if it can be found out, to what the exception and assignment of error applies. The instruction given in the first exception does not mention the word "equivalent" once. It does not make any attempt to define or instruct the jury as to what constitutes ~~a right hand~~ equivalent in a machine. It does not make any suggestion as to whether the pressure plates controlled as to their movements and as to the degree of pressure to be exerted by them, at the pleasure of the operator, or by the right and left hand screws, would be an equivalent of the weight or not, nor does it say a word about the second claim of the patent.

Neither is the word "equivalent" mentioned in the second exception. No attempt is there made to give any abstract definition of what it takes to constitute a mechanical equivalent in a machine. It does not appear in either of the exceptions that any testimony was introduced tending to raise any question which would call for the necessity of defining a mechanical equivalent in a machine to the jury. It does not appear in either of these exceptions that any occasion arose for giving any such definition. It may very well have been that both sides took it for granted that the Court and jury well knew what would constitute a mechanical equivalent in a machine and that all parties during all the time of taking the testimony treated the knowledge of what a mechanical equivalent was as something that the jury were already in possession of. Or it may have been, and we think there is enough stated in the exceptions to inform this Court that the fact was that the defendants admitted that their machines contained all that the plaintiffs' patent covered, and that they made their defense upon the one ground that the plaintiffs' patent did not describe an operative mechanism, that a machine constructed as described in the patent would not do the work which the patent represented that it would do and that therefore the patent was void, or at least that if the machine described in the patent would not do its work because it was a vertical machine and the defendants' machine would do the work because it was a horizontal machine that then the plaintiffs would be limited to a vertical machine. The Court gave the jury instructions to the effect that if the plaintiffs' machine would not do its appointed work, and that the defendants' would that the plaintiffs' patent was void, and also that in such case the plaintiffs would be confined to a vertical machine. After giving these instructions the defendants may well have had all that they were entitled to have under the testimony and the manner in which they tried and presented their side of the case. If there is no testimony before this Court it cannot say what the second claim of the patent was and the instructions asked for may have

been out of place in so far as it applied exclusively to the second claim. If the evidence is in the case the Court will see from it that the foregoing suggestions are in accordance with the facts.

As a rule of law a party to a suit has not the right to call upon a Court to give any instruction upon an abstract question of law, even though the instruction asked for may be correct as an abstract legal proposition. Before error can be claimed for the refusal of a Court to give an instruction it must be shown that the instruction asked for had such a bearing upon the case that it ought to have been given, and it is not enough that it might be correct as an abstract legal proposition. The exception does not show that any testimony whatever was given tending to show that the pressure plates and screws did not perform the same result, and by the same mode of operation in the horizontal machine as was performed or produced by the weight and the pressure thereon in the vertical machine, and in the absence of any such testimony the instruction "specifically as prayed for" was not a matter of right and it ought not to have been given as it would only have tended to mislead the jury. The weight of the patent was a false head. The instructions which the Court did give were precisely in accordance with the subsequent decision of this Court in the Schultz Belting Co. case. The instruction "specifically as prayed for" was faulty in itself, as the expression "is a thing which performs the same result" is meaningless. A result is the effect of what is performed and is not the performance itself. It is not the thing which is performed. Besides the weight was itself a disk or false head to which pressure was to be applied and the disks or false heads of the defendants' machines were also disks to which pressure was applied, and they were not so much the equivalents of the weight as they were identically one and the same thing.

The assignment of error however does not complain of the refusal of the Court to give the instruction "specifically as prayed for" but it complains only of the

instructions which were given, "as set forth in the third exception." We repeat that there are no "instructions to the jury" which are "set forth in the third exception" that are not correct and proper.

THE FOURTH EXCEPTION.

The only testimony which is contained in this exception is that which tended to prove that the defendants had made a working machine in accordance with the specifications and drawings of the patent sued on and that such machine was not practically useful for fulling hides.

The Court gave the instruction which is shown on pages 10 and 11 and the first half of page 12.

The instruction given was to the effect that the machine was sufficiently described in the patent if a skilful mechanic could make a good practicable working machine by applying his mechanical skill to those specifications and drawings. That it was the business of the machinist who should undertake to construct and to try fairly a machine made after that patent, to put in the proper number of screws which his experience and his knowledge of the art would show him, to put them in the proper places, and to make them of the proper and convenient length. So much intelligence is supposed to be in the public and in all mechanics. It is not necessary that a patent should state such things as that. Such things are always understood. This was a correct instruction.

The defendant, Coupe, had also expressed the opinion that even if he had built the machine properly according to the description of the patent and had employed ordinary mechanical skill in constructing it that even then it would not have worked, that he was of the opinion that no vertical machine ever can work.

The Court instructed the jury that they should consider the two classes of fact, the opinion of Mr. Coupey and also *the evidence as to what had been done with these machines*, and that if the jury found that *vertical machines*

had been operated that then it was idle to say that they could not be operated. That what had been done could be done. The Court repeated in substance that the description of the patent was sufficient when it described the machine with sufficient accuracy for the purpose of an ordinary intelligent man who is acquainted with machinery.

Also that the parts that operated the machine were not a part of the invention; they were the property of the whole world and might be used by any one for driving any machines. There was no patent on the bevel gears that run one machine (the plaintiffs') nor on whatever devices run the other (the defendants) and they were immaterial to this controversy. So was whatever device was used to press together the false heads of the defendants or the false head of the patent. The patentee does not say what shall be used for pressing his head, (which head of course is the weight) but he says in the patent that it is pressed down.

These instructions were eminently proper. That the description of a patent is sufficient when an intelligent mechanic can make and practice the invention by adding his skill and mechanical knowlegde to the specifications and drawings of the patent has always been decided.

It is a provision of the law itself. Sec. 4888 of the Revised Statutes.

Curtis on Patents. Sections, 252, 253.
Telephone Cases, 126 U. S., pages 535 and 536.
Loom Co. vs. *Higgins*, 105 U. S., pages 585, 586, 587 and 588.

EXCEPTION FIVE.

The fifth subdivision of the bill of exceptions relates entirely to the subject of damages. The testimony upon the subject is put into the exception. The substance of it is:

First. That the defendants had softened over sixty-six thousand hides (not sides, but *hides*) in their infringing machines.

Second. That Royer knew the difference in cost between softening the hides mechanically in a machine which contained the combinations covered by the claims of the patent, viz: the central shaft with means for fastening the hides thereto, a weight on which pressure may be applied on the coil of hides, and the crib formed by the row of pins in a circle around the shaft. Such difference in cost would approximate four or five dollars per hide. He knew it would be more than one dollar per hide.

Third. There never was a machine prior to the plaintiffs' for softening raw hides in which the hides were wound and rewound within a crib around a central shaft.

Fourth. The defendant Coupe testified that he would not take a machine made like his model of the plaintiffs' machine as a free gift. That he would not use a machine made like the plaintiffs' patent in preference to the old fashioned fulling mill, for the reasons that he thought he could work the fulling mill to a greater profit than he could work a vertical machine with pressure applied from above, and because he thought it would do more work and make a better quality and more effectually break the hides.

The substance of the charge of the Court to the jury is that if they believed Royer's testimony they should make an estimate of the damages from his testimony, but that if they believed the testimony of Mr. Coupe was correct, then the defendants were entitled to a verdict.

The charge left the jury to determine which of the witnesses was correct. This was all that the defendants were entitled to have the charge do. Although the plaintiffs could easily have proved an advantage and consequent value of four or five dollars per hide by the use of the patented inventions in softening them, still the amount run up so large that they were willing to fix it at one dollar per hide. There could, on that valuation, be no possible ground for any conflict in the evidence, and it would be an undervaluation in the defendants' favor. Plaintiffs knew that neither Mr. Coupe nor any one else who understood the business could ever fix the amount

at any less than one dollar per hide, *and no attempt was made by the defendants to make the amount any less than the evidence of the plaintiff made it* in any other way than to assert that a Royer machine when made as the defendant Coupe made one had no value whatever. The defendants' risked and rested their defence upon the proposition that a machine made as described in the plaintiffs' patent would not do any practical work and was valueless. They planted their feet upon this proposition, and at the trial they stood upon that alone. The Court charged the jury that *if such was the fact that the defendants were entitled to a verdict.* What more could the defendants have asked the Court to do. Royer had testified that he had operated the vertical machines successfully during the entire life time of the patent, *and not the least attempt was made to contradict him.* It was also shown that Wetherhead & Thompson had operated vertical machines with the combinations of the patent in them successfully from the year 1881. Coupe's evidence was thus flatly contradicted, and it would have been gross error for the Court to have taken this question of fact away from the jury. In leaving this question of fact to the jury the Court could not with any propriety go any further in the defendants' favor than to charge the jury that if the fact was as claimed by the defendants that the defendants were entitled to a verdict. Certainly no further effect could be given to Mr. Coupe's testimony than to have the jury give him a full verdict if his testimony was true. This the Court did. What more could the Court do for the defendants than this? Surely nothing.

The language of the Supreme Court in Loom Co. vs. Higgins, 105 U. S., beginning near the bottom of page 580, is particularly in point on this proposition. It is as follows:

"A great deal of testimony was introduced by the "defendants to show that the patentee had failed to "describe his invention in such full, clear and exact "terms as to enable persons skilled in the art to con- "struct and use it. It seems to us that the attempt

" has failed. When the question is whether a thing " can be done or not, *it is always easy to find persons " ready to show how not to do it.* But it stands confessed " *that the thing has been done,*" etc. The instruction of the Circuit Court was strictly in accordance with the decision of this Court in the said case of Loom Co. vs. Higgins.

This Court repeated the latter part of the foregoing in the Telephone Cases, 126 U. S., page 530.

Both parties it will be noticed assumed that whatever the proof showed would be saved by the use of the inventions was the correct measure of damages. See folios 18 and 19 of record.

Defendants asked the Court to instruct the jury that "as " it appeared upon the face of the plaintiffs' patent in trial " that the invention specified therein related only to an " improvement in machines for treating raw hides, the " evidence upon the question of damages must show the " value of the improvement which forms the subject of " the patent, and if the evidence presented does not " prove the value of such improvement, as distinguished " from the value of the entire machine or of prior ma- " chines known to the art and free to be used by the " public, then the verdict should be for nominal damages " only."

The Court gave the charge as nearly like the one asked as it properly could. As asked the charge was erroneous. In the first place *it does not appear upon the face of the patent that the invention specified therein related only to an improvement* in machines for treating rawhides. The patent says upon its face:

"Be it known that we, Herman Royer and Louis " Royer of San Francisco City, San Francisco County, " State of California, *have invented a new and improved " machine* for converting raw hides into leather." Also, "The nature of our invention is to *provide an improved machine* for converting rawhides into leather," etc. Also "In order to accomplish our object, we *employ a " machine* mounted on a suitable frame," etc. and

"The operation of *our machine* is as follows," etc. and "By thus treating hides *in our machine*," etc.

From this it is seen that the face of the patent shows that the invention is not of a mere improvement upon an already existing machine, but the invention is of *a new machine*. See record, pages 190 and 191.

Not only does the patent thus show that the invention was of *an entirely new machine* but the claims of the patent, although for two combinations, *cover the machine as a whole*. The new machine commences with the central shaft made to revolve first in one direction and then in the other, this shaft having a slot and set screws by which the hides are fastened to the shaft. Next comes the crib, made up of the circular row of pins secured in their positions by having their ends set in rings which form a part of the frame of the machine and the grooved weight, on which pressure is to be applied to press the coil of hides edgewise that is being treated in the machine. *These parts make up the entire machine and they are covered by the claims of the patent.* The patent is for an entire machine, and it is not for any improvement on any existing machine. *It was the first machine that was ever made that operated with the shaft revolving first in one direction and then in the other within a circular crib.* The entire principle of the machine was new and was a new discovery of the inventors and the machine as an entire machine was new and was the invention of the patentees. For this reason the instruction asked for was wrong and it would have been error to have given it.

It was also wrong in assuming that the evidence did not show the value of the invention as distinguished from the value of prior machines.

That was exactly what the evidence did show and it would have been error to have assumed that it did not show this. The question asked the witness was:

"Q. 123. Do you know how the cost of softening "rawhide by mechanical action, by any other known de- "vices than as described in your patent, compares with "the cost of manufacturing or softening rawhides

" by mechanical action in a machine which contains the " combination of devices named in your patent—that is, " the central shaft with means for fastening the hides to " the central shaft, a weight on which pressure may be " applied on the coil of hides and the crib formed by the " row of pins in a circle around the shaft."

This was the foundation question which formed the basis on which comparisons were made between the value of the plaintiffs' invention and each any every and all other devices, whether machines or anything else in the shape of devices.

The charge which the Court gave to the jury limited the comparison which they were to make with other devices to, " the value of *this invention* to any person using " it," and " the use of *this particular mechanism* for the " performance of this particular operation in the course " of the production of rawhide leather," and "the use of " *this mechanism* of his," and etc. See charge beginning near bottom of page 13 of record.

Surely in this there was no comparison made of the value of any entire machine of which the patented mechanism formed *only a part*, or on which the patented invention was an improvement. The plaintiffs' counsel took especial pains to limit all estimates of value or damage *to the use of the patented invention* and not allow any evidence to come as to the value of an entire machine of which the patented invention was only a part or upon which it was only an improvement. The rule therefore which requires the value of the improvement to be segregated from the value of the entire machine upon which the improvement is engrafted has no application.

See last half of folio 10 and folio 20.

The Court repeatedly instructed the jury that if the contention of Mr. Coupe was true that the vertical machine, or one made as described in the patent, would not do its work that the patent was void and the defendants were entitled to a verdict. This we again urge was all that the defendants had any right to claim upon the defendants' showing, both as to the proper construction of

the patent and as to the rule of damages. See record folios 12, 13 and the last paragraph of folio 20.

The jury found a verdict in favor of the plaintiff for only eighteen thousand dollars. Record, latter part of folio 7. This was less than twenty eight cents per hide for the use of the invention by the defendants, an amount ridiculously small compared with the value of the invention.

That the Court correctly instructed the jury as to the rule of damages to be applied in case they found that the patent was valid and that the defendants had infringed cannot, we think, be questioned, and we presume that it will not be questioned. The rule was declared in the earlier cases and we believe has never been changed.

In Whittemore vs. Cutter, 1 Gall., 478, (same case in 1 Robb's Patent Cases, 40.) Judge Story instructed the jury that "If the jury are of the opinion that an user of "the machine is actualy proved in this case, the rule "of damages should be the value of the use of such a "machine during the time of the illegal user."

In this case of Whittemore vs. Cutter the patent was especially declared to be for the machine as an entire machine, and the jury was instructed that if the invention was only an improvement on those machines which had already been in use, then the patent was void because it was too broad. Hence the instruction embodied the value of use of the entire machine as the amount to be assessed as damages, the entire machine being the patented invention.

In the case at bar we especially limited the damages to the use of the invention that was patented without saying whether it was or was not the entire machine. The instruction of the Court does the same thing. See plaintiffs' testimony in Exception 5, and also the charge of the Court therein.

Also in Lowell vs. Lewis, 1 Mason 182, (same case in 1 Robb, 151.) Judge Story instructed the jury that "if the plaintiff is entitled to recover, the patent act "gives him treble the actual damages sustained by him; "and the rule for damages is, in this case, to allow the

" plaintiff treble the amount of the profits actually re-
" ceived by the defendant, in consequence of his using
" the plaintiff's invention. The jury are to find the sin-
" gle damages, and it is the proper duty of the Court to
" treble them, in awarding judgment."

In this instruction the damages were confined to the value of the use of the invention which was not the entire machine, and the actual damages were the profits which the defendant had actually received in consequence of his using the plaintiff's invention.

So in Curtis on patents, sec. 338 he, repeats the rule, referring to the foregoing decision with other authorities " § 338. In estimating the 'actual damages' the rule
" is, in cases of infringement by an actual use of the
" plaintiffs' invention,—as by making and using a patented
" machine,—to give the *value of such use* during the time
" of the illegal user, that is to say, the amount of profits
" actually received by the defendant, but not the profits
" which he might have made by reasonable diligence."

In Hall *vs.* Wiles, 2 Blatch, 197. (Same case in Fisher's Patent *Reports*, (not *Cases*), 433 Judge Nelson instructed the jury, " The rule of law as to damages,
" when an infringement is made out, is to give to the
" plaintiff the actual loss which he has sustained, and
" nothing more. Exemplary or vindictive damages can
" not be given. If the damages are insufficient, there is
" a provision of law authorizing the Court to treble
" them. The plaintiff is entitled, if his case is made out,
" *to the profits on all the machines sold by the defendant*."
See last paragraph of the decision.

In Pitts *vs.* Hall, 2 Blatch 230 (same case in Fisher's Patent *Reports*, 441) Judge Nelson instructed the jury that " Another mode, and the one resorted to partially
" in this case, is to ascertain the profits which the party
" infringing has derived *from the use of the invention* or
" the construction of the machines; because whatever
" profits he has derived have arisen from the wrongful
" use of the invention, and belong to the real owner of
" the machine." See last paragraph of the charge to the jury.

In Wilbur vs. Beecher, 2 Blatch., 132, (same case in Fischer's Patent Reports, 401,) the same great jurist charged the jury that "If the defendant has been guilty "of violating the plaintiff's rights, the rule on the question "of damages is, that the plaintiff is entitled to all the "actual profits which the defendant has made by the use "of the principle of the plaintiff's combination. In other "words, the plaintiff is entitled to all the damages which "he has sustained *by reason of the use* which the defend- "ant has made of the plaintiff's property. This is in effect "the same thing," &c. There is nearly a full page near the end of this charge on the question of damages.

The foregoing were *cases at law*, and the instructions were given to trial juries by those great jurists Judge Story and Judge Nelson, both of whom were justices of the Supreme Court of the United States.

Coming to the very latest decision in a jury trial, in a case at law, on this proposition that we are aware of we cite the case of Brickill vs. Mayor &c. of Baltimore, in Vol. eight of the U. S. Circuit Court of Appeals Reports, 500. In this case the Court of Appeals held that where there is no evidence to show that any license fee has ever been paid or demanded, *the jury*, in estimating the damages, should consider the utility and advantage to the defendant of the use of the patented device, as compared with any other means of obtaining similar results, whose use was open to it, and may compare the cost of using the one to the cost and saving in the use of the other. In this case the Court of Appeals cite the cases of Suffolk Co. vs. Hayden 3 Wallace, 315, and quote from page 320 thereof. It also quotes from pages 317 and 318 *ibid*, the language of the lower Court in charging the jury, and which language was approved by the Supreme Court and affirmed in its decision, as follows:

"Then you will look at the value of the thing used, "and ascertain that value by all the evidence as to its "character, operation, and effect. You will take into "view the *value of that which the defendants have used* "*belonging to the plaintiff*, to aid you in forming a judg-

"ment of the actual damage the plaintiff has sus-
"tained."

This Court, in reference to this charge, said on pages 319 and 320, 3 Wall: "But looking at the term value, in "the connection in which it was used, it is quite clear that "it had reference only to the utility and advantages, or "value of the use of the improvement over the old mode "of cleaning cotton; not the value of the patent itself."

In the said case of Brickill vs. Mayor of Baltimore the Court of Appeals also quotes from the case of Sessions vs. Romadka, 145 U. S., 29. The rule of damages which was declared in jury trials which we have referred to has been repeated in suits in equity by this and other Courts often and constantly, and we believe there are no exceptions to it, or any decisions to the contrary, if we except one or two minor decisions of the lower Courts.

In Illinois Central R. R. Co. vs. Turrill, 110 U. S., page 303, this Court says, that "profits are regarded in the light of unliquidated damages," citing Parks vs. Booth, 102 U. S., 96.

In Root vs. Railway Co., 105 U. S., on page 198, this Court declares, that "the *profits*, which are recoverable "against an infringer of a patent, are in fact a *compensa-* "*tion for the injury the patentee has sustained from the* "*invasion of his right. They are the measure of his* "*damages.* Though *called profits, they are really dam-* "*ages*, and unliquidated until the decree is made."

However this may be, all the authorities agree, we believe, in holding that in suits of both law and equity, the successful plaintiff may prove and recover as damages the *value of the use of the invention* during the time that the defendant has used it. This is all that was done in the case at bar, and the instructions complained of go no further.

We submit that the instruction given in the case at bar was strictly in accordance with the authorities, and was correct.

SIXTH EXCEPTION.

The sixth exception is taken to the instruction which the Court gave to the jury to the effect that it was not necessary for the plaintiffs to have given notice of the existence of their patent or that the defendants were infringing, before bringing this suit.

There was no evidence and no pretence that the plaintiffs had made and sold machines covered by the patent without marking them patented as required by Section 4000 of the Revised Statutes. Before any proof of this kind could have been given the defendants should have set the same up either in their pleadings or in a notice of special matter so that the plaintiffs could have been prepared to meet the issue with evidence.

Walker on Patents, Sec. 463.
Rubber Co. vs. *Goodyear*, 9 Wall. 801.
Sessions vs. *Romadka*, 145 U. S., page 50.

Said section 4000 requires that any person making or selling an article that is patented, shall give notice to the public that the same is patented by marking the article patented together with the date of the patent. Of course this can only apply when the article made or sold is shown, or in some manner exposed to the public. Unless the public can see the article so made or sold the marking of such article could not give the public any notice of the patent. If a patentee makes the patented article and uses it in secret, keeping it from the public view, the law could not apply.

We believe that a close reading of the entire record will fail to show that either of the patentees, either made or sold a single one of the patented machines during the life time of the patent. There is testimony that machines were made before the patent was issued and that the machines were used during the whole life time of the patent. But we do not think that there is proof in the record which shows that any machines which were covered by the patent was either made or sold by either the patentees while the patent

was alive. There was no such point made in the trial and not the remotest suggestion was made to the effect that the plaintiffs had forfeited any right to damages upon the ground that they had made or sold the patented machines without marking them patented.

Even in the sixth exception there is no suggestion of this kind. It seems to be there assumed that the plaintiffs had to give notice to the defendants, not that the plaintiffs had a patent, but that the defendants were infringing the patent. The exception says:

"For that the plaintiffs and the defendants having "offered testimony respectively upon the question "whether the plaintiffs had or had not given notice to "the defendants prior to the commencement of the "action *that the defendants were infringing the said letters "patent* to Herman Royer and Louis Royer in suit," etc.

There is in this no suggestion that any evidence had been introduced tending to show that the defendants were ignorant of the plaintiffs' patent, or that the plaintiffs or their licensees had made or sold any machines which were covered by the patent without marking them patented. The defendants drew out from the witnesses what occurred when each one of the two Royers, at different dates, visited the defendants factory. The question was at issue as to whether the defendants were infringers or not, and the defendants essayed to make a point before the jury to the effect that the plaintiffs had seen the defendants' machines and had not claimed that they were infringements and that this was proper testimony tending to show that there was no infringement. No such point was made in the Circuit Court as that the plaintiffs had made or sold machines without marking them patented.

Whether Schultz, or Wetherhead & Thompson, or any one else other than the plaintiffs made, or used, or sold, unmarked machines covered by the patent, would make no difference to this case. It is only when the party failing to so mark the machines patented *is plaintiff* that he cannot recover damages. The section, 4900, says:

"and in any suit for infringement, *by the party failing so to mark*, no damages shall be recovered *by the plaintiff*, except," &c.

These remarks are probably superfluous as we have no good reason to suppose that the plaintiffs in error will undertake to make an issue in this Court which was not made in the Circuit Court.

The instruction given as shown in the sixth exception was correct. It has always been held that it was not necessary for the plaintiff in a patent case before bringing the suit to show that he had notified the defendant that he was infringing, or even that the plaintiff had the patent upon which suit was brought.

A patent is a public record of the United States and every one must take notice thereof at his peril. It is legal constructive notice to the whole world.

Walker on Patents, section 191.
Sessions vs. Romadka, 145 U. S., page 50.

Respectfully submitted,

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